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November 1988

Policy Research Notes

Issue 26

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Alternatives for Farm
and Farm Family
Labor Resources

POLICY RESEARCH NOTES: Published by the Economic Research Service, USDA, and the Illinois Agricultural Experiment Station for professionals in public agricultural and food policy research, teaching, extension, and policymaking.

CONTENTS

	<u>Page</u>
Introduction.....	1
Announcements by R.G.F. Spitze.....	2
Policy Research News Notes by R.G.F. Spitze.....	5
The Political Side of Alternative Agriculture by William P. Browne.....	12
A Policy Perspective on the Low-Input/Sustainable Agriculture Program (LISA) by Patrick Madden.....	20
Low-Input Agriculture in the Corn Belt in 1985 by Richard F. Nehring.....	27
Alternative Opportunities for U.S. Farms: Resolving Agriculture's Trade Deficit and Environmental Conflicts by Michael Dicks and Neill Schaller.....	37
Farming Alternatives in New York State by Judy Green and Wayne Knoblauch.....	46
Alternatives for Farm Labor and Management: Farm Women in Florida by Christina H. Gladwin	50
Prospects for Off-Farm Employment as a Continued Factor in Farm Family Incomes by R.G.F. Spitze and R.K. Mahoney.....	54
Commodity Program Update by Thomas H. Lederer and Richard L. Shelton.....	60
Agricultural and Food Policy Update: Administrative Decisions by Kathryn L. Lipton.....	62
Agricultural and Food Policy Update: Legislation Susan L. Pollack.....	72
Policy Research Publications Available by R.G.F. Spitze and Kathryn L. Lipton.....	75

No. 26

Washington, D.C.

November 1988

Policy Research Notes is a cooperative effort of the Illinois Agricultural Experiment Station and USDA-ERS. Notes are prepared by R.G.F. Spitze, Department of Agricultural Economics, 1301 West Gregory Drive, University of Illinois, Urbana, Illinois 61801 and Kathryn L. Lipton, U.S. Agricultural Policy Branch, ATAD, ERS, 1301 New York Avenue NW, Washington, D.C. 20005-4788.

INTRODUCTION

Alternatives for Farm and Farm Family Labor Resources is the theme of this issue of the Notes.

Examining alternatives is a time honored and tested approach in public policy. It has also come into vogue as an approach to several current critical agricultural and food policy problems concerning such issues as different farming systems, non-traditional crops, farm family labor, competitiveness, and environment. Thus, it is quite appropriate that six selected commentaries focus on this theme from the perspective of both farm and family resources.

Bill Browne brings his political science insights to bear as he traces the political factors relevant to emerging alternative agriculture policy. He concluded that it is still approaching rather than actively on the policy agenda, and will appear only as incremental policy changes. Similarly, Pat Madden, as administrator of the recently funded USDA research program for low input/sustainable agriculture, traces its development. While Pat concludes that this emphasis in research funding is here to stay, he foresees little need for a special program if the principles of low input agriculture would ultimately become the norm undergirding all public agricultural research.

Rich Nehring examines Corn Belt production economics research to

evaluate whether low input farming pays. He generally found that a reduction in agricultural chemicals would be consistent with maintaining profitability for selected cropping patterns; however, shifts on economic criteria alone are likely to be limited. Mike Dicks extends the review of alternative farming opportunities in a search for joint solutions for farmers, as their price and income policies are impacted by budget and trade deficit constraints and their farming practices impacted by environmental constraints.

Judy Green and Wayne Knoblauch report on the Farming Alternatives Project at Cornell. The purpose of the project is to develop new farm products, marketing strategies, services for entrepreneurs and production methods to help maintain the vitality of New York's farms and rural communities. The article introduces many of the innovative concepts that have come out of these activities.

Finally, shifting to alternatives for excess farm family labor resources, Christy Gladwin examines the increasing role of farm women in both the labor and management activities of farming, with a Florida focus. Similarly, Bob Spitze and Rosemary Mahoney examine the trends in off-farm employment of farmers and spouses, and prospects for the future of those opportunities, with an Illinois focus.

ANNOUNCEMENTS

Compiled by R. G. F. Spitze

1989 NPPEC Conference Scheduled

The 39th Annual National Public Policy Education Conference has been scheduled for September 18-21, 1989, in New Orleans, LA.

For further information or input into the program development, contact Karen Behm, NPPEC Committee and Program Chair, Economics and Rural Development, Cooperative Agricultural Extension Service, Louisiana State University, Baton Rouge, LA 70803-5604.

Workshop on Capacity and Agricultural Adjustment Scheduled

A National Workshop on "Capacity and Adjustment Problems in American Agriculture," sponsored by NCR-151, will be held in St. Louis, January 23-24, 1989. Purposes are: 1) to review the extent to which current capacity of the agricultural plant and prospective demand for agricultural output are out of harmony, 2) to study the adjustment problems and prospects in various regions of the country, 3) to examine how policy impacts agriculture's capacity for resource adjustments, and 4) to identify viable policy options that bear directly on adjusting resources to achieve a more socially optimal output level.

Topics to be discussed include surplus capacity in American agriculture; regional adjustment problems and prospects; and public programs and resource adjustments. The Planning Committee includes Jon Brandt (Missouri), Milton Hallberg (Pennsylvania), Robert House (ERS), Jim Langley (USDA), Willi Meyers (Iowa), and Jim Oehmke (Michigan).

Reservations may be made at the Clarion Hotel, St. Louis, MO, by calling 1-800-325-7353 and asking for "NCR-151 Agricultural Policy Conference," with a rate of \$53.00 plus taxes of 10 percent and \$2.00.

Inquire about this workshop from Milton Hallberg, Chr., Planning Committee, 101 Weaver Bldg., PA State Univ., University Park, PA 16802 (ph. 814-865-0467).

Northeast Regional Committee Research Symposium

The Northeast Regional Committee on Commodity Promotion Programs (NEC-63) is planning a symposium, February 22-23, 1989 in Orlando, Florida. It will consist of six sessions: 1) Ongoing Empirical Research on Generic Advertising; 2) Incorporating Advertising in Demand Systems; 3) Effectiveness of Brand Versus Generic Advertising; 4) Attitudes in Advertising Research; 5) Supply Response and Optimal Control Models of Advertising; and 6) Future Directions for Advertising Research.

For further information about this upcoming symposium, contact Walter J. Armbruster, Farm Foundation, 1211 W. 22nd St., Suite 216, Oak Brook, IL 60521-2197.

Workshop on 1990 Policy Being Planned

The North Central Policy Research Committee (NC-151) will cooperate with several other groups in sponsoring a national workshop on "Policy Issues and Alternatives for the 1990s--the Food and Agriculture Sector," for a broad range of leaders and participants in this important policy development. The workshop will be held in Washington, D.C., in late 1989 or early 1990. A planning committee of Harry Baumes (ERS), Jim Hildreth (Farm Foundation), Jean Kinsey (Minnesota), Marshall Martin (Indiana), Daryll Ray (Oklahoma), Fred Woods (ES), Carl Zulauf (Ohio), and Bob Spitze (Illinois) met in Washington, D.C., October 21-22, 1988 for exploration of issues and timing with policy leaders.

Inquire about this workshop from R. G. F. Spitze, Chr., Planning Committee, 305 Mumford Hall, 1301 W. Gregory Dr., Urbana, IL 61801.

Conference to Link Agribusiness/Shipping Prospects

Fujairah, United Arab Emirates, has been set for the location of the February 13-15, 1989 conference on investment and trade prospects for interrelated development of shipping and agro-industrial enterprises. This conference is being organized in cooperation with the Agri-Energy Roundtable, a U.N.-accredited, nongovernmental organization comprised of international food and energy companies and other organizations seeking improved Third World agriculture.

The agenda will reflect Fujairah's strategic potential with regard to advancing the goals of food and transportation security in the region. The agenda will also highlight the economic development potential of

Gulf regional cooperation in agro-industrial ventures, and research and development. Topics will include: port development and agro-food handling/distribution techniques; sea-air transshipment; debt-equity swaps for agro-industrial projects; desert agriculture technology; sea water farming and technology transfer; renewable energy and agriculture; and development linkages to East/Southern African and Southeast Asian port infrastructure.

For further information on this development conference contact James A. Hafner, Washington, D.C., (202) 887-0528.

National Center Offers Resident Fellowships in Policy

The National Center for Food and Agricultural Policy (NCFAP) is inviting applications for resident fellowships in food and agricultural policy during the 1989-90 academic year. Up to three fellowships will be awarded, each for a period of six to twelve months, to young professionals who wish to pursue scholarly work on current or emerging national issues related to food and agricultural policy.

The award is open to individuals in any discipline who will have complete their doctoral requirements by the beginning of the 1989-90 academic year. Individuals from universities, government, and the private sector are eligible. Professionals who will be on sabbatical leave during the fellowship period are encouraged to apply.

The deadline for receiving publications is April 3, 1989. Awards will be announced in May 1989; an earlier decision may be made in the case of an applicant interested in beginning the

fellowship during the summer.

For further information and application forms, contact Tamara A. Kloeckl, National Center for Food and Agricultural Policy, Resources for the Future, 1616 P Street NW, Washington, D.C. 20036.

POLICY RESEARCH NEWS NOTES

Compiled by R. G. F. Spitze

Trade Negotiations

Research at the IMPACT Center at Washington State University examines the implications for Pacific Northwest agriculture of completed and current trade negotiations. One of the products of this project is release of updated summaries of the GATT negotiations.

Inquire about this ongoing project and request a copy of the related publications, "GATT-Watch," and "The US.-Canada Free Trade Agreement, Implications for the Northwest Food Industry," IMPACT Information Series No. 25, September 1988 (\$3.00 charge) from A. Desmond O'Rourke, IMPACT Center, Washington State University, Pullman, WA 99164-6214.

Multilateral Trade Liberalization Project Release Proposal

The National Center for Food and Agricultural Policy of Resources for the Future has an ongoing project on agricultural protectionism in the industrial countries. Particular attention is being given to the Uruguay Round of multilateral trade negotiations in the General Agreement on Tariffs and Trade (GATT) currently underway. In "A Declaration on Agricultural Trade," one product of the project, 26 agricultural trade policy experts from eight countries and two international organizations advocated sweeping agricultural policy reforms and trade liberalization by both the industrialized and developed nations.

Inquire about this project and request of a related publication, Mutual Disarmament in World Agriculture -- A Declaration on Agricultural Trade. May 1988, from Tamara A. Kloeckl, National Center for Food and Agricultural Policy, Resources for the Future, 1616 P Street, N.W. Washington, DC 20036.

Implications of Agricultural Reforms in Industrial Market Economies

This research used an 11 region, 22 commodity world net trade model to study the economic implications of agricultural policy reform in industrial market economies. The analysis showed that elimination of subsidies would be closely related to the levels of assistance. The results also indicate that the United States would improve its agricultural balance of trade while the European Community and Japan would face agricultural trade deficits. All three economies, however, would experience income gains from multilateral liberalization; however, on a per capita basis, these gains would be small.

Inquire about this research from Vern Roningen, 1301 New York Avenue, N.W., Washington, DC 20005-4788.

Leaflets on Southern Agriculture in a World Economy

A regional educational effort has resulted in the publication of a set of 11 leaflets on various topics about Southern agriculture's

interest in a world economy, available either as a set or in camera ready copy in the southern States. Developed jointly by the International Trade Task Force of the Southern Extension Public Affairs Committee and the Southern Extension Marketing Committee, edited by Parr Rosson, Hal Harris, and Geoff Benson and published by the Southern Rural Development Center, it includes 11 leaflets and authors: 1) Southern Agriculture in a World Economy by H. Harris and G. Benson; 2) Global Competition in Southern Agriculture by P. Rosson, G. Vocke, and K. Searce; 3) U.S. Trade Policy and Southern Agriculture by M. Paggi, J. Seale and G. Fairchild; and 4) Third World Debt Crises, International Banking, and Southern Agriculture by G. Vocke and J. Seale.

Also included were: 5) Governmental International Intervention in Agricultural Trade by J. Searle, G. Fairchild, and M. Paggi; 6) Third World Development and Southern Agriculture Trade--Creating Competitors as Building Export Markets by P. Rosson and G. Vocke; 7) National Economic Policies - Effects on Agricultural Trade by D. Orden; 8) Understanding GATT - Current Trade Negotiations and Southern Agriculture by L. Sanders and D. Henneberry; 9) The Caribbean Basin; An Initiative on notes by G. Fairchild, M. Paggi, and J. Seale; 10) International Research Benefits to Southern Agriculture by K. Searce, and 11) Trade and Policy Issues--1990 and Beyond by P. Rosson and H. Harris.

Inquire about this effort from Hal Harris and Parr Rosson, Department of Agricultural Economics and Rural Sociology, Clemson University, Clemson, SC 29631, and also availability of leaflet series from Southern Rural Development Center, P.O. Box 5446, Mississippi State, MS

39762.

NPPEC Proceedings Now Available for 1988

Increasing Understanding of Public Problems and Policies - 1988 is now available. It includes topics concerning; 1) Public Choices for Revitalizing Rural America; 2) Priority Issues for a New Farm Bill; 3) Opportunities for Joint Public Policy Education; 4) Selected Emerging Issues in Agricultural and Food Policy; 5) Selected Emerging Resource Issues; 6) Policy Option of Substituting Research and Education for Regulating Agricultural Chemicals; 7) International Agricultural Relations.

Request a copy of these proceedings from Farm Foundation, 1211 W. 22nd Street, Suite 216, Oak Brook, IL 60521-2197.

A Model of Economic Regulation: Case of Beef Trade with Japan

This effort estimates a hybrid political-structural model of intervention in the Japanese beef import sector. The empirical results are based on a reduced-form derived from a simple supply-demand model. Food security concerns and interest group size are important determinants of beef protection in Japan and the recent liberalization of this market may reflect changes in these influences.

Inquire about this effort from Merle D. Faminow, Department of Agricultural Economics, University of Arizona, Tucson, AZ 85721.

A Food Aid Strategy for Haiti

An assessment of food needs in Haiti was conducted in order to provide a basis for shaping future U.S. food aid programs in the country.

Analysis of secondary data, key informant interviews, and review of in-depth nutrition studies in Haiti generated information on the level of food needs in the country and a range of developmental strategies. Nutritional considerations were especially important in determining the level of need, the commodity mix and proportions, targeting of vulnerable groups, and in assessing the indirect effects of Titles II & III.

Inquire about this research and request a copy of a related paper, "A Food Aid Strategy for Haiti: Maximizing Developmental Effectiveness," April 25, 1988, from Brady J. Deaton, Office of International Development, VPI & SU, 1060 Animal Sciences Bldg., Blacksburg, VA 24061.

Agricultural Policy Changes in Ecuador

This study examines the shift toward a more market-orientated agricultural policy by the Febres Cordero government which took office in 1984. Analysis of the impacts of the shifts were made, as well as some of the consequences and problems in implementing such changes.

Inquire about this research and request a copy of a related paper, "Agricultural Policy in Ecuador: Impacts of a Shift to the Right," March 1988, from Dale Colzer, 2040 Agricultural Sciences Building, West Virginia University, Box 6108, Morgantown, WV 26506-6108.

Fuel Ethanol Policy in Quebec

As part of an ongoing study on the economics of fuel ethanol production from feedstocks other than grain, current provincial policy

& private sector developments in the Quebec energy sector were examined. In addition, research and development efforts in Quebec were surveyed. This included results from an Input-Output analysis of the impact of an ethanol sector on Canada. Current research is focused on the economic viability of Jerusalem artichoke as a feedstock.

Inquire about this effort and request a related paper, "Fuel Ethanol Policy and Developments in Quebec," from John Henning, Dept. of Ag. Economics, 21,111 Lakeshore Rd., Ste. Anne de Bellevue, PQ, Canada H9X 1C0.

Trade and Southern Agriculture Workshop Proceedings

Southern Agriculture, International Trade, and You is the title of a proceedings of a Regional Trade Conference held in June, 1988, at Williamsburg, VA (announced in PRN, No. 25, May 1988, p.2). It was designed to acquaint a wide range of educators about the impacts of trade on Southern agriculture.

Inquire about this effort from Hal Harris, Department of Agricultural Economics and Rural Sociology, Clemson University, Clemson, SC 29631.

Planning for Policy Preference Surveys Underway

Cooperative efforts by the National Public Policy Education Committee, North Central Policy Research Committee (NCR-151), and ERS and Extension USDA are underway to conduct policy preferences surveys for farmers on a state-by-state basis. Surveys among representative samples of producers will be made between November 1988 and March 1989 so that a composite report can be prepared and distributed during

consideration of new farm legislation in late 1989 to 1990. Some efforts may also be made to assess similar preferences among agribusiness and consumers.

Inquire about this research from Harold D. Guither, Project Coordinator, 305 Mumford Hall, 1301 W. Gregory Drive, University of Illinois, Urbana, IL 61801.

How Farm Programs Affect Structural Adjustments

This study examines how farm programs affect the consequences of technological advance. It was found that new technology permits fewer farms to produce more output at lower cost, and ultimately the same per farm profit, than was possible under the old technology. Producer-preserving policies seemed to encourage more farms to adopt the new technology than the market would support, and this imposed adjustment costs as these firms changed technologies only later to have to exit, rather than leaving the sector before adoption. The researchers concluded that decoupled exit annuity payments could facilitate adjustment at lower cost than present programs, and such would benefit both the exiting farmers and those remaining.

Inquire about this research and request a copy of a related report, "Agricultural Policy, Technology Adoption, and Farm Structure," Staff Report No. AGES 880810, USDA-ERS, October 1988, from Lloyd D. Teigen, USDA-ERS-ATAD-ATI, Room 832, 1301 New York Ave., Washington, DC 20005-4788.

Workshop on Conservation in the 1990 Farm Bill

The American Farmland Trust is

conducting an extended, nationwide series of workshops on the development of the conservation title of the 1990 Farm Bill. The meetings are being organized on a regional basis, and multiple workshops will be held in each region.

Inquire about these workshops from James D. Riggle or David Dyer, 1920 N Street, NW, Suite 400, Washington, DC 20036.

Effects of Public Policies on Sustainable Agriculture

Grant support from the USDA's LISA program and from the Northern Area Foundation has made possible a multidiscipline research effort at South Dakota State which examines the influences of agricultural and other public policies on low-impact/sustainable agriculture. Data are being drawn from both Experiment Station trials and operating farms to construct economic models.

Inquire about this research effort and request a related publication, "Factors Influencing the Economic Potential for Alternative Farming Systems: Case Analyses in South Dakota," American Journal of Alternative Agriculture, 1988, 3(1):26-34, from Thomas L. Dobbs, Department of Economics, Soby Hall, South Dakota State University, Brookings, SD 57007.

Regional Rural Development Workshops Held

Four regional workshops on Rural Development Policy Options were held in September-October, 1988, in Minneapolis, Syracuse, Birmingham, and Reno. Objectives were: to identify critical rural development policy options; to educate rural

leaders on issues, options, and consequences; to reduce fragmentation and increase communication to begin building consensus among groups and agencies working in rural development; and to provide results of this consensus-building process to conferees.

The following set of background papers was prepared by teams of authors: 1) "Economic Dimension of Rural America" by D. L. Brown and K. L. Deavers; 2) "Building a Vital Rural America" by R. Webber, R. Shaffer, R. Knutson, and R. Lonan; 3) "Education, Retraining, and Relocation" by D. Hobbs, W. Hefferman, and L. Tweeten; 4) "Income and Employment Policy" by W. Gillis, D. Fisher, and S. Smith; 5) "Rural Poverty Policy" by F. Woods, P. Ross, and D. Fisher; 6) "Rural Health Policy" by S.M. Cordes and T. A. Bruce; 7) "National Resource Policy" by R. A. Carriker and L. Libby; 8) "Financing and Providing Rural Public Services" by D. Choicoine, T. Stinson, P. Eberts, G. Goldman and R. Clouser; and 9) "Toward a Comprehensive Rural Development Policy" by R. Knutson, G. C. Pulver, and K.P. Wilkinson.

Sponsors of these workshops, with 125-350 participants each, included USDA's Extension Service, Farm Foundation, Regional Extension Public Affairs and Policy Committees, Regional Rural Development Centers, U.S. Department of Labor, National Rural Electric Cooperatives, Aspen Institute, and U.S. Economic Development Administration and 14 other agencies.

Inquire about this educational effort and availability of any of the papers from Ron Knutson and Denis Fisher, Project Leaders, Department of Agricultural Economics, Texas A&M University, College Station, Texas 77840-2124.

Rural Development Policy Issues

A Task Force of the National Governor's Association has been studying various problems and issues about rural development in the United States. They have focused on several specific topics including rural economics, federal funds to rural areas, new business and entrepreneurship, community education and technical assistance, outdoor recreation in economic development, rural public schools, rural health, availability of capital in rural areas, growth management, and transportation.

Inquire about this effort and order a copy of the task force report, New Alliances for Rural America (charge of \$15) from Tom Unruh, National Governor's Association, 444 N. Capitol Street, Suite 250, Washington, D.C. 20001.

Chemicals in the Human Food Chain Symposium

A year-long study has been carried on about chemicals in the human food chain, involving over 60 university researchers and other professionals as consultants. A recent symposium focused on the findings to date. The work is continued and additional publications are pending.

Inquire about this research effort and request a copy of the symposium proceedings, Chemicals in the Human Food Chain: Sources, Options, and Public Policy, (charge \$15 each), from John Woolcott, Agricultural Issues Center, University of California, Davis, CA 95616.

Effect of Nitrogen Fertilizer on Profitability and Groundwater Contamination

This multi-state, multi-disciplinary applied research/educational project will use test plot data to estimate nitrogen-yield response functions and the effects on farm profits of taxes on fertilizers and of restrictions on nitrogen. It will also examine educational programs to reduce nitrogen applications.

Inquire about this project from Harry W. Ayer, Department of Agricultural Economics, University of Arizona, Tucson, AZ 85749

Forward Contracting Activities

This study, mandated by the Disaster Assistance Act of 1988, looked at drought-induced forward contracting problems. Although these problems have affected many elevators in 1988, few were found to face serious losses. Elevators surveyed in 13 Corn Belt and Spring Wheat states in September expected that farmers would default on less than 2 percent of their contracts. The findings suggested that less than 2 percent of the contracts would be renegotiated, and most of those renegotiated would be settled by the farmer paying the elevator the full price difference plus a service charge.

Inquire about this research from Richard Heifner, USDA/ERS, 1301 New York, NW., Room 1140, Washington, DC 20005-4788, and request a copy of a related report, "Forward Contracting in the Corn Belt and Spring Wheat Areas in 1988: Results from an Elevator Survey," from Bruce Wright at above address.

Dairy Termination Program in Southern States

This research evaluates factors influencing bid prices by Southern dairy farmers. Bid prices of those participating in the Dairy Termination Program in the Southern states averaged lower than for the United States as a whole. It was found that size of operation, production efficiency, profitability, debt, and retirement influenced bid price levels.

Inquire about this research from Dale H. Carley, Department of Agricultural Economics, University of Georgia, Georgia Station, Griffin, GA30223-1797, and request a copy of a related report, Financial Viability and Other Factors Affecting Bid Prices of Participants in the Dairy Termination Program in Four Southern States, Research Report 550, September 1988, from Georgia Agricultural Experiment Station, 125 Barrow Hall, University of Georgia, Athens. GA 30602.

Agricultural Nuisance and Right-to-Farm Laws

This research analyzes right-to-farm legislation that responds to agricultural nuisance problems. After considering significant features of this body of legislation, the amended Georgia Right-to-Farm Law is analyzed.

Inquire about this research and request a copy of a related paper, "Agricultural Nuisance and the Georgia Right-to-Farm Law," from Terence J. Centner, Department of Economics, UGA, 313 Conner Hall, Athens, GA 30602.

Survey of Idaho Beef Cattle Industry

Policy Issue of Pecan Marketing Order

This study looks at the practices of Georgia pecan accumulators and shellers. It includes an examination of industry sentiments relative to a pecan marketing order, the need for consistence grades and standards, and the need for a mandatory check-off for product promotion and advertising.

Inquire about this research and request a copy of a related publication, Purchasing and Marketing Practices of Georgia Pecan Accumulators and Shellers, Research Report 544, December, 1987, from Eugene Hubbard, Department of Agricultural Economics, Georgia Station, University of Georgia, Griffin, GA 30223-1797.

Farmers' Financial Conditions and the Dairy Termination Program

The factors that determine the financial soundness of dairy farm participants in the Dairy Termination Program were examined using a multi-response, ordered model. Policies paying farmers to exit will include those with a wide range of financial conditions.

Inquire about this research and request a copy of a related article, "Financial Soundness of Southern Dairy Farmers Participating in the Dairy Termination Program," Agricultural Finance Review, vol. 88: 87-93, 1988, from Dale H. Carley, Department of Agricultural Economics, University of Georgia, Georgia Station, Griffin, GA 30223-1797.

A survey has been made of the Idaho range cattle industry, resources employed, production and marketing practices used, operator's characteristics and aspirations, and policy problems. This is the initial phase of a study on the economics of alternative beef cattle management/marketing systems. The results give insight into research and education needs for specific segments of the industry to serve the broad diversity of beef enterprises. They also reveal the challenge of how to bring about change in an industry with strong traditions of attitude and operation.

Inquire about this research from Gerald Marousek, Department of Agricultural Economics & Rural Sociology, University of Idaho, Moscow, ID 83843, and request a copy of a related publication, "Management & Marketing Practices & Policies of Idaho Beef Cattle Producers," 1988, from Scott Fedale, Head, Agricultural Communications Center, University of Idaho, Moscow, ID 83843.

THE POLITICAL SIDE OF ALTERNATIVE AGRICULTURE

by William P. Browne 1/

U.S. agriculture changes as a result of a complex interplay of structural and technical developments, shifting economic incentives, and political intervention. While the first two sets of factors are generally understood and accepted by agricultural specialists because of their predictable impact on production, politics remains highly suspect. The reason is relatively simple. Politics is not just a consensus of opinion leaders facilitating some easily determined proper direction for agriculture. Political intervention in agriculture, depending on the moment in time, takes aim at accepting, rejecting, or modifying how the rewards and hardships of agricultural production are distributed within society. Because politics is essentially about who among numerous claimants holds power and how they use it, intervention often produces public policies that defy rational use of agriculture production resources.

As a consequence, politics as an important agriculture determinant is often seen as producing arbitrary and haphazard effects for the sector. Politics is an especially uncertain variable for the rapidly emerging national issue commonly referred to as "alternative agriculture," and for its future direction. At present, alternative agriculture has been brought forward in numerous policy ideas. Problems, dilemmas, and concerns with

chemically intensive farming practices have entered the initial stage of the policy process as policymakers from Congress, the administration, and numerous private interests have seriously considered these ideas as forerunners to more detailed investigation. The ideas are now prompting both analysis and debate.

Beyond the policy idea phase, however, there are four other stages of the policy process that alternative agriculture must breach before it is well-integrated into the governance of agriculture:

- o proposed policy solutions must gain a position of credibility on the issue agenda of agriculture;
- o analysis and proposals must in a significant way be converted into legislative format;
- o Congress must act and adopt the legislation; and
- o the intent of that legislation must be implemented through either old or new agriculture programs.

As the following analysis will demonstrate, very important questions exist as to which alternative agriculture concerns will get to the policy agenda for development, how they will get there, and what will be done about them.

Setting New Policy Goals

The political proponents of alternative agriculture are, in a word, unfocused; they remain collectively uncertain as to whether new programs are needed to produce low-input policy or whether traditional commodity programs should be reversed to achieve low-input farming ends. This is in sharp contrast to mainstream

1/ The author is Professor of Political Science and MPA Director, Central Michigan University.

agriculture where the industrialization of production has brought increased commodity specialization and growth in farm size and productivity. As a publicly desirable goal, the production focus of modern, high specialization agriculture is on growing more at least cost with an eye toward export markets as a means of disposing of domestic surplus. Because such agriculture faces inherently unstable domestic and foreign markets (Anderson 1987), those who represent its numerous organized interests in national politics have a set of policy goals that are as well focused as these commodity production targets (Bonnen 1980, 1988; Browne 1988). Specifically, industrialized agricultural interests may quarrel among themselves over the clarity and results of federal policy, but they agree on common goals. They want income- or price-maintenance support and stability programs that help lower production costs and assistance in marketing.

Moreover, a well-institutionalized vehicle for the policy demands of mainstream industrialized agriculture exists in the "farm bill," the recurring omnibus agriculture and food legislation. Since the 1930s, the multiple provisions of this policy vehicle have been primarily concerned with supporting farm income and maintaining production capacity (Talbot and Hadwiger 1968; Hansen 1987). Domestic food distribution was added more recently as Congress became convinced that a multi-purpose farm bill was more publicly and politically desirable than "farmers' only" legislation.

From a political perspective, even when its programs are under tighter scrutiny because of budget constraints, industrialized agriculture finds itself richly advantaged because its production activities and policy goals share a

compatible focus and a simple message to Congress: agriculture faces specifically identifiable threats which produce much uncertainty; it has equally specific policy goals; and it finds already institutionalized policy rules that keep those goals on the active legislative agenda. Of equal importance, industrialized agriculture confronts administrative and legislative policymakers who have throughout their careers understood agriculture policy as inherently consistent with--if not intentionally promoting--the progression to larger and more efficient farms.

Alternative agriculture, in contrast, has no such advantages that either promote easily determined public policy decisions or lead to noteworthy challenges to those who represent the status quo. The origins and ideas of alternative agriculture, while always articulated as opposition to chemical-intensive monocultures, emerged in the 1950s and 1960s. But they did not arise from specific and obvious problems and proposed solutions nor a specifically identifiable constituency with a routine policy claim. Rather they grew gradually from a global, but highly individualistic and loosely organized, environmentalist movement. Within that movement, agriculture is a subset of broader concerns, and a lately developing one at that. As Milbrath (1984) describes this environmentalist movement in his cross-national survey research, its proponents value nature for its own sake over human domination of natural resources and want careful planning to avoid environmental risks associated with their use. Environmentalists also prefer resource protection even at the expense of generating wealth and they seek limits to growth. They reject "materialism" in favor of a

simpler back-to-basics lifestyle and hope for an emerging new politics where participatory democracy overrides expert determinations as to appropriate natural resource use.

Over the last quarter century, these generalized environmental ideals have spawned several disparate groups of agriculture production critics. Each has their own points of view but still shares a mutual reaction to the high levels of production inputs of capital intensive, industrialized agriculture. Among the first critics were organic farmers, eschewing fertilizers and pesticides. Some feared the scenario of Rachel Carson's Silent Spring (1962), while others worried over human consumption of chemically produced food. From the organic ranks came advocates of "whole systems" agriculture, such as Rodale Farms with their popular publications. By the early 1980s, less strident producers, some of whom were reacting to the farm financial crisis and the high cost of chemical inputs, were proclaiming themselves "low input" agriculturalists whose only goal was a nebulous, but happy balance between the benefits of chemicals and their minimal use.

Within Washington, public interest lobbies such as the Environmental Policy Institute began project- and product-specific opposition to groundwater contamination, certain pesticides, and new technologies. Innovations in biotechnology galvanized somewhat broader support for alternative agriculture as a subset of environmentalism by expanding the controversy to include concerns over genetic collapse, the power of agribusiness, and economic threats to the family farm (Browne and Hamm 1989).

But none of this criticism has yet brought clarity or focused agreement even to the definition of

alternative agriculture and its opposition to chemically dependent production. Specific policy goals or major legislative initiatives have not been developed by groups within the movement. Nor have alternative agriculturalists been able to emerge as the singular guardian of the environment in an issue area where conservation has long been a publicly stated goal, one recently advanced in the 1985 farm bill through cross-compliance provisions for commodity programs. At best, policy initiatives still are at the research support stage where government can more closely look at the problem. The organizations that represent various alternative agriculture ideals still operate with little common support (and sometimes hostility) for one another, often being uninformed about the activities of other proponents not directly involved in closely related projects. From the perspective of policymakers, this means that no clearly defined and generally accepted information sources exist with whom policy options can be discussed.

Such organizations also lack the influence that comes with documented public opinion support. There is no systematic data as to the degree of popular support alternative agriculturalists actually have from farmers or the public. Claims about farming practices and public awareness are based on letters and other bits of evidence that voluntarily flow in to their offices. As group representatives state, most of their political energy is now used to bring interested proponents together for meetings and conferences. From these gatherings the hope is that consensus, meaning, and policy goals will emerge as participants become more aware of their common problems and less inclined to cling to divided perspectives on sustainability.

This education effort is, at present, of priority importance to alternative agriculture and its activists. Unlike traditionally industrialized agriculturalists, their political strength is one of potential in a policymaking environment that is relatively unfamiliar with alternativist complaints. That potential will only produce results when alternative agriculturists can convince policymakers--in the name of the public or a generalized farm interest rather than that of agricultural development--that farm production environmentalism should be moved beyond the mere recognition of policy ideas and progress to the active agenda-setting stage in developing specific public programs. At present, policymakers have gained widespread knowledge of chemical and monoculture problems; but they also lack credible proposals and solutions about what should be done to incorporate these concerns into various aspects of public policy.

Agenda-Setters

Despite the political uncertainty that clouds the public policy future of alternative agriculture, there are both individuals and organizations with an interest in seeing alternative options on the active policy agenda. Some of these likely will be the sources on which legislators and administration officials depend as programs are developed in congressional subcommittees and USDA agencies through the 1990s. Each is in a unique and credible position to provide new information and integrate diffuse demands.

Likely agenda-setters include:

- o ■ relatively small number of congressional staff personnel with positions as legislative assistants in member offices or with the agriculture committees. These staffers have targeted the

importance of alternative agriculture because of constituents' problems with water pollution by agriculture, contacts with agriculture scientists who share alternativist concerns, and, in at least one instance, strong personal convictions that ally that individual with the global environmental movement. They have, in large part, been responsible for the very few legislative proposals that have so far been made on behalf of alternative agriculture;

- o numerous USDA officials whose research backgrounds have led them to question the environmental and economic effects of industrialized agriculture and speak out in favor of alternative approaches and methods. While most of these officials are with the Agricultural Research Service, others are scattered widely around the department, including the Economic Research Service and the Agricultural Stabilization and Conservation Service;

- o land-grant college scientists who, increasingly through designated research centers, look at the comparative costs and benefits of industrialized and alternative agriculture;

- o the Soil Conservation Society, a private organization, with its long history of soil and water interests, diverse membership, strong ties to USDA's Soil Conservation Service, and generally high status within the agricultural community. The Society has begun to play a leadership role by serving as a high profile forum in which agricultural scientists and alternative activists can discuss issues and techniques of low-input farming:

- o American Farmland Trust (AFT), a privately organized Washington, D.C. interest group that was instrumental in developing and promoting conservation provisions for the Food Security Act of 1985.

With its noteworthy board of directors and its reputation for working effectively on policies with traditional farm groups, AFT's characteristics differentiate it from other environmental and conservation interests;

- o the Institute for Alternative Agriculture (IAA), along with AFT as a privately organized Washington, D.C. interest, is another new organization of the 1980s. The Institute, however, operates less as a lobby and more as a center for information gathering and dissemination, and promoting activism. IAA's name, educational presence, attractive quarterly journal, and Washington proximity make it an especially visible organization;

- o the Rodale Institute, the Pennsylvania-based sustainable agriculture organization that has been a high profile low-input farming spokesgroup outside national policymaking for two decades. Rodale has recently changed tactics. It supplied funds and the organizing skills of consultant lobbyists to aid in securing congressional appropriations for low input sustainable agriculture (LISA) provisions of the Food Security Act of 1985.

For all their potential in contributing to the political side of alternative agriculture, these proponents face difficult obstacles. Congressional staff, while they operate and maintain the enterprises of offices and committees, usually have short tenure and infrequently develop the substantive expertise of agricultural specialists in USDA or universities. Line public agency administrators--for all their expertise, dedication, and staying power--have not been found to be effective agenda-setters (Kingdon 1984: 32-33), perhaps because most feel it is inappropriate to drop the veil of neutral analytical objectivity and be identified as a

program advocate. They lack the capacity to push their ideas along, usually requiring the support of political appointees to do so.

The Soil Conservation Society, AFT, IAA, and even Rodale, depend largely on resources that have proven to be of limited utility in exercising political influence. Their work attempts to focus the various concerns of the alternative agricultural proponents through conferences, publications, organizing a policy working group, and generating intellectual commitment to policy ideals. As was the case with the plethora of economic reform-oriented conferences held in preparation for the 1985 farm bill, this can be wasted energy when measured against the persuasive influence of traditional farm interests with their well-established and competing points of view.

Likely Policy Adoption

Given the highly focused policy goals of those who represent industrialized agricultural interests, even the most respected alternative agriculture proponents have not found ongoing support among general farm, commodity, and even farm protest organizations. In an era of hard-pressed federal budgets, new programs for alternative agriculture are viewed with cautious suspicion by policymakers and traditional agriculture interests for their redistributive effects on both commodity program and current research funding. They also ask how to draft programs that realistically promote extensification rather than intensification of chemical use. In addition, the no-growth or limited-growth environmentalist attitudes of alternative agriculture proponents continue to be seen as a threat to economic and export policies that support industrialized agriculture.

For the near future, if farm

policy circumstances remain stable, the representatives of alternative and industrialized agricultures are likely to remain in two camps. Commodity groups, in particular, will feel obligated to take some problems seriously but generally remark harshly as to the benefits of alternative agriculture and the accuracy of its research findings. Congress and the Administration, in return, will find it difficult to complete the development of any extensive or costly policy proposals that alternativist agenda-setters may bring forward as specific policy ideas.

Should that scenario play out, there will likely be only modest policy gains for alternative agriculture in the near future. Specifically, farm bill commodity programs that provide disincentives to crop rotation will quite possibly be eliminated. Low-input grant funding from USDA may be increased from levels set by Congress when the program was appropriated funds for 1988. Some effort will be made to react to the widely discussed nitrogen fertilizer contamination of groundwater supplies, as well as other groundwater quality problems in farm areas. Each of these gains are likely because they are largely nonredistributive in their impact and they can easily be addressed under current provisions of federal law. If dealt with in a 1990 or 1991 farm bill, each of the above items broadens the social appeal of that omnibus legislation in the same way that conservation provisions did for the Food Security Act in 1985.

Other scenarios, creating more dramatic policy results and more extensive shifts in alliance between industrial and alternative agricultural interests, are possible only if farm policy circumstances are changed severely. If so, factors other than natural policy progression may well open unexpected pathways to the policy agenda for

alternative agriculture. Four possible factors and their pathways include (Browne 1987):

- o Demographic changes. Nonfarm rural residents, who far outnumber farmers, could galvanize into a new political force. They may become especially dissatisfied with bearing the brunt of air and water pollution while not receiving any benefits from federal policies that emphasize farm programs as the basis for rural policy efforts;

- o An exogenous shock to the system. Should the use of high-input agricultural products be identified either scientifically or in the public's mind with harmful and widespread side effects to resource users, support for industrialized agriculture policies could well erode. Alternative agriculturalists would reap a windfall of new programs as domestic policymakers struggled with adjusting old programs to secure some new vision as to the meaning of food security;

- o Internal catastrophes. Continued drought on the scale of 1988 could facilitate some production changes. Even localized disasters, reminiscent of Love Canal for the chemical industry or PBB for the Michigan dairy industry, might force rapid alteration of national production practices if groundwater contamination or proximity to agricultural chemicals were deemed at fault;

- o Individual or group catalysts to change. Policy entrepreneurs, such as Ralph Nader, who "invested" in auto safety legislation, have frequently been instrumental in creating political issues. While Rachel Carson was important in changing some public attitudes, the time may come when a sustainability advocate such as Jack Doyle (1985), Jeremy Rifkin (1983), or another activist finds a far more responsive cord to strike with environmentally sympathetic and risk

conscious citizens and policymakers.

While none of the above yet appear imminent on the agricultural policy horizon, the uncertain nature of politics and the appearance of those pathways in many other policy areas makes it worthwhile to ponder their potential usefulness to proponents of alternative agriculture.

Conclusion

While alternative agriculture is not without political support and some degree of present policy concern, its political status can best be understood as still approaching rather than actively on the policy agenda. It now is acknowledged to be one among many potentially important sets of policy ideas that may be worked into law, or further accommodated in existing policy. The unanswered questions are: what will be worked in and how will it be done?

Comprehensive and well-defined programs, for reasons both internal and external to the proponents of alternative agriculture, are a considerable ways from being developed and even further from being adopted. It still remains to be seen what congressional subcommittees, perhaps outside the agriculture committees, will take charge of alternative issues. When the time does come for policy action, there more than likely will be only incremental policy changes in the near term that, to a relatively small degree, balance alternative agriculture concerns with those of industrialized agriculture. Even that incremental pathway to the public policy agenda, however, presents the proponents of alternative agriculture with a long and arduous climb in convincing legislators and administrative officials of a need for new and uncertain agricultural policy directions. With some other

strategic pathways available and often open to manipulation, some activists may well opt to carry their issues to the public for a different route to alternative policies.

References

- Anderson, Kym. 1987. "On Why Agriculture Declines with Economic Growth." Agricultural Economics 1:195-207.
- Bonnen, James T. 1980. "Observations on the Changing Nature of Agriculture Decision Processes." pp. 309-327. In Farmers, Bureaucrats, and Middlemen, ed., Trudy Huscamp Peterson. Washington, D.C.: Howard University Press.
- Bonnen, James T. 1988. "Institutions, Instruments, and Driving Forces Behind U.S. Agricultural Policies." pp. 21-39. In U.S.-Canadian Agricultural Trade Challenges: Developing Common Approaches, eds. Kristen Allen and Katie Macmillan. Washington, D.C.: Resources for the Future.
- Browne, William P. 1987. "Some Social and Political Conditions of Issue Credibility: Legislative Agendas in the American States." Polity 20:298-315.
- Browne, William P. 1988. Private Interests, Public Policy, and American Agriculture. Lawrence: University Press of Kansas.
- Browne, William P. and Larry G. Hamm. Forthcoming 1989. "Political Economy, Biotechnology, and the Dairy Industry." Policy Studies Journal.
- Carson, Rachel. 1962. Silent Spring. New York: Houghton-Mifflin.
- Doyle, Jack. 1985. Altered Harvest: Agriculture, Genetics, and

the Fate of the World's Food Supply.
New York: Viking Penguin.

Hansen, John Mark. 1987. "Choosing
Sides: The Development of an
Agriculture Policy Network in
Congress, 1919-1932." Studies in
American Political Development.
2:183-229.

Kingdon, John W. 1984. Agendas,
Alternatives, and Public Policies.
Boston: Little, Brown.

Milbrath, Lester W. 1984.
Environmentalists: Vanguard for a
New Society. Albany: State
University of New York Press.

Rifkin, Jeremy. 1983. Algeny. New
York: Irving Press.

Talbot, Ross B., and Don F.
Hadwiger. 1968. The Policy Process
in American Agriculture. San
Francisco: Chandler.

A Policy Perspective on the Low-Input Sustainable Agriculture Program

by Patrick Madden 1/

A new Federal research and education grants program has been established to develop and promote profitable farming methods that will pose less environmental and human health threat, and be more sustainable than current practices widely used in U.S. agriculture. The policy context in which this program came into existence and the funding history are reviewed. The approach being used to administer the program is summarized and its future is discussed.

Policy Background

Since World War II, public policy on the environmental and health impacts of farming practices has fallen into three somewhat overlapping eras:

In the Era of Presumed Innocence, pesticides and other agricultural chemicals were viewed as essentially harmless to man and the environment. Advances in chemistry were heralded as man's escape from the Malthusian threat of inevitable food shortages and starvation. Lacking any concrete evidence to the contrary, experts and chemical companies assured the public that there was nothing to worry about.

The beginning of the Era of Regulation and Indemnification was marked by the publication of Rachel Carson's classic book, Silent Spring. Suddenly the public was

made aware that agricultural chemicals had been causing massive damage to wildlife populations. The Environmental Protection Agency was created in the early 1960s and given a broad mandate to protect the environment from harmful substances, including agricultural chemicals.

While clinical and epidemiological evidence linking pesticides to human health problems was still lacking, many citizens became alarmed about possible long-term effects. This concern was perhaps strengthened by scientific findings that substances long considered harmless could cause problems that would not show up for decades or even into the next generation. Elevated incidence of vaginal cancer, for example, was found in women whose mothers had used dimethyl stilbestrol (DES) during their pregnancies. Inhalation of asbestos particles was found to cause lung cancer as long as 20 years later. Death rates due to genital, lymphatic, and digestive cancer were found to be very strongly correlated with levels of herbicide applied in some 1,000 rural counties over a 20-year period (Stokes and Brace). Some observers counter that these concerns were hysteria, not based on valid scientific evidence. It appears that in the minds of chemical advocates, the Bill of Rights principle that a person is presumed innocent until proven guilty should be applied to chemicals.

Meanwhile, where evidence of environmental or health risk was strong, EPA invoked restrictions. The insecticide DDT was the first major casualty. Others followed. Some of these regulatory actions, however, actually resulted in a negative net impact on the

1/ The author is the head of Madden Associates in Glendale, California. He also manages the field operations of the new federal research and education grants program, "Low-Input Sustainable Agriculture."

environment and human health risk because banned or severely regulated substances were replaced by new materials later found to be even more hazardous. In his book, Breaking the Pesticide Habit, Gips summarizes many such examples, including Aldrin, Dieldrin, Parathion, Chlordane, Dibromochloropropane (DBCP), and many others. Furthermore, even when pesticides known to cause cancer, birth defects, and other health problems have been banned or severely restricted, illegal (black market), sales and uses occur, especially in instances where large profits are at stake.

Banning certain substances in the United States has not prevented the manufacture and export of these and possibly more toxic chemicals to nations lacking the awareness or regulatory machinery to prevent their use. Foods produced with banned substances are then shipped back into the United States in competition with U.S. products grown with more costly and less effective pesticides (Hearne).

A number of landmark pieces of legislation were enacted during this second era (Reichelderfer). Some of the significant acts include the 1947 Federal Insecticide, Fungicide, and Rodenticide Act (FIFRA) and its several amendments, the Swampbuster and Sodbuster provisions of the 1985 Food Security Act, the 1987 Water Quality Act, and various groundwater protection acts. These acts largely prohibit or restrict certain farming practices considered environmentally harmful or detrimental to long-term productivity of U.S. agriculture.

Along with the regulatory approach, persons or firms harmed by pesticides may be indemnified either by the government (if the pesticides were used legally) or by the manufacturer or applicator in other instances. Legislation exists, for example, to compensate beekeepers for losses due to pesticide use

(Gips, p. 75). In parts of California, bee mortality is reported to have reached 25 to 30 percent of the colonies used to pollinate crops.

Meanwhile, concern over nitrate contamination of groundwater contamination has become a major issue in areas where large amounts of nitrate fertilizer or manure are applied. Nitrate in drinking water is known to cause a kind of suffocation among infants due to oxidization of the hemoglobin molecule in the blood by nitrate ions produced in the intestine. Long-term health effects on human populations are also suspected. Eutrophication of lakes due to farm runoff of fertilizer nutrients is a major concern in many areas. The prospects of solving this problem via regulation are dim because of the complexities related to timing of application, precipitation, soil type, crop cover, and other biological and physical factors. In addition, policing the fertilization and manure-handling practices of hundreds of thousands of farms could be extremely difficult.

Regulation remains the first line of defense against environmental and human health risks associated with farming practices. While the regulatory approach restricts availability of certain kinds of chemicals, the effectiveness of legally used materials has been rapidly diminishing. Insects, mites, weeds, and other pests have begun developing genetic resistance to pesticides at an astonishing rate (National Research Council). This trend is particularly hazardous to monoculture agriculture, where the reproductive cycle of pests is not interrupted by crop rotations or ecological diversity. The need for an alternative approach has become increasingly urgent.

Dissatisfaction with the efficacy and political costs of

regulatory action has prompted an alternative approach: improving the productivity and profitability of farming practices that are less dependent on chemical inputs. The Era of Enhancing Options really began with the first Integrated Pest Management initiatives. It gained momentum with the success of biological control programs that enhance the ability of natural enemies to control pests with little or no use of pesticides. This era has recently received increasing impetus through funding of a new program enabled in the 1985 Food Security Act, entitled "Agriculture Productivity Research," (commonly known as Low-Input Sustainable Agriculture or LISA).

Funding History

The first Federal appropriation for the LISA program was \$3.9 million, passed in December 1987. That small but significant sum was the result of a highly effective lobbying effort sponsored by the Low-Input Agriculture Working Group. The Rodale Institute provided funds for a Washington lobbying firm (McMahon Associates) to promote and focus public and political pressure in support of the program. This effort included identification of farmers who were constituents of key legislators and who were willing to come to Washington to testify before various Congressional committees regarding their rather impressive results from adoption of low-input methods. Several highly supportive senators and congressmen and a few key staffers played essential roles in passage of the first appropriation of LISA funds. The lobbying effort succeeded. Support came from an extremely diverse and politically powerful combination of organizations, including the League of Women Voters, the Isaac Walton League, the Soil and Water

Conservation Society of America, and the National Farm Bureau Federation. The Senate-House Conference Committee agreed to an appropriation of \$3.9 million for fiscal year 1988.

Congressional staff indicated the legislators were impressed by the performance of the program during its first round of funding. In particular, they approved of how rapidly the program was initiated. In just six months, administrative guidelines were developed, regional committees were formed, and the first round of projects were approved. This process normally takes at least 12 to 18 months for new programs. They were also pleased with the substance of the 49 projects funded in the first year. The Congressional staff persons observed, with surprise and approbation, that these projects are not "business as usual." In particular, they noted the projects encompassed a wide range of subject matter germane to low-input sustainable agriculture. Other aspects of the intent of Congress were also evident in the projects, including meaningful involvement of farmers, interdisciplinary cooperation in research activities, cooperation between research and extension personnel, and a significant share of funds allocated to 13 private research and education organizations.

A similar lobbying effort was undertaken for fiscal year 1989, again with financial support provided by Rodale Institute and leg-work by McMahon Associates. Again the program was funded, despite the Gramm-Rudman budget crunch and no funds requested in the President's budget. The Senate requested \$5 million, and the House wanted funding at the previous year's level of \$3.9 million. The actual appropriation (passed in September 1988) was \$4.45 million, a 14-percent increase over the first

year. While this increase is modest, it is nonetheless significant in view of the lack of support in the Executive budget and the general tone of austerity in the budgeting process.

The October 1988, version of the President's budget, approved by USDA officials, requested only \$3.9 million. This reflected a policy of keeping LISA funding constant, and since this budget was prepared prior to passage of the 1989 budget, the smaller amount appeared in the budget. However, when the President's budget was released in January 1989, even the modest \$3.9 million had been eliminated. Sources at McMahon Associates predict Congress will once more restore the LISA program's funding, because of its widespread popularity. However, the policy of the Bush administration regarding support for LISA remains to be seen.

How the Program Has Been Administered

The fiscal 1988 appropriation law stipulated that the initial \$3.9 million would be administered by a single agency of USDA in cooperation with other agencies and various public and private organizations. USDA's Cooperative State Research Service (CSRS) was designated to administer the program. Early in 1988 several policy decisions were made in CSRS regarding the administration of the LISA program. The general administrative approach to be followed was to get the program under way as rapidly as possible, realizing some mistakes would be made along the way. A conference was planned following completion of the first round of funding, to receive guidance on ways to improve the administrative procedures for subsequent years. A revised set of guidelines for administering LISA was developed, partly in response to suggestions at

that conference (Madden).

I was asked to manage the program for CSRS under the direction of Paul O'Connell, chair of the USDA Research and Education Subcommittee on Alternative Farming Systems, starting in January 1988. My first order as manager of the program was to see that the Extension Service remained a full partner in the design and implementation of the program.

A major policy decision was that the program is to be administered through the four regions (Northeast, North Central, Southern, and Western), with funding distributed through a single host institution in each region. Project selection would be done at the regional level.

Focus on Priority Issues and Activities

The role of CSRS and the Extension Service is to facilitate effective and rapid development of the program in ways that are compatible with the intent of Congress and the policy of the Department of Agriculture. The intent of Congress is revealed in the enabling legislation (The Food Security Act of 1985, Subtitle C of Title 14) and the language of Congressional Appropriation Committee reports. The priority issues and activities include:

- o Developing economically viable crop and livestock systems which reduce reliance on off-farm purchased inputs especially synthetic chemical pesticides and fertilizers that may pose environmental or human health risks, and maintain or enhance soil productivity. Alternative systems should also be developed which reduce soil erosion and loss of water and nutrients, conserve energy and natural resources, and minimize environmental contamination and health risks;

- o Developing and evaluating strategies and materials for converting from high-input to reduced-input farming systems;

- o Facilitating technology adoption relative to low-input sustainable farming systems by disseminating existing and new scientifically based information in readily usable form; preparing in-service training packages for state and county Cooperative Extension personnel and other audiences; developing data bases and data base network systems; identifying the most knowledgeable individuals on a given subject; and providing easy access to appropriate information;

- o Developing methodologies and capacity for scientifically valid on-farm research and demonstration;

- o Monitoring and characterizing existing low-input farming systems;

- o Analyzing the effects of Federal, state, and local policies on farmer incentives to adopt low-input sustainable farming methods. An initial grant for this purpose was given to American Farmland Trust.

A set of guidelines was drafted in January 1988 (Madden and O'Connell) to ensure that these priority issues and activities were incorporated in the program. An ad hoc working group was convened on January 28-29 to review the guidelines. This group was composed of persons representing Agricultural Experiment Stations and Cooperative Extension Services in each of the four regions, plus 1890 Land Grant institutions, various agencies of USDA, and private sector research and education organizations represented by Rodale Institute. As the LISA program has evolved, a set of guiding principles was developed (see sidebar).

Ten Guiding Principles of the LISA Program

1. If a farming method is not profitable, it isn't sustainable.

2. The program should provide farmers accurate information, in readily usable form, regarding management and impact topics about which they are concerned.

3. Somewhat lower yields plus much lower costs equal higher profits.

4. Farmer's low-input results are realistically anticipated only in whole-farm system plans.

5. Low-input profits can be enhanced by research and education.

6. Team effort must include meaningful participation of farmers, public, and private organizations, and functionally integrated research and extension.

7. Full partners with CSRS in the design and implementation of the program must include Extension, Soil Conservation Service, and other conservation organizations, and private research and educational organizations.

8. The program is to be administered at regional level with major decisions made by regional technical committees including farmers, researchers, and educators. Program administration must incur a minimum of administrative expense and bureaucratic hassle.

9. Low-input sustainable methods are highly site-specific, requiring adaptation to local conditions, such as climate, soils, topography, markets, and local laws and regulations governing farming practices.

10. A multi-year transition is often required for profitable adoption because of natural, managerial, and financial considerations.

LISA's Future

A major concern is whether the in-coming Bush administration will support the LISA program. Public support for the program exhibits a remarkable strength and diversity. There seems to be an increasing concern about the environmental and health impacts of farming methods, especially the use of pesticides, and about the long-term sustainability of agriculture. There also appears to be a preference not to continue to rely entirely on the regulatory and indemnification approaches, but rather to invest public monies in research and educational efforts to develop improved management options whereby farmers can make a profitable transition from heavy dependence on synthetic chemical pesticides and fertilizers. This is the purpose of the LISA program.

Current price and income support policies provide a very strong disincentive, penalizing farmers financially for switching from heavily chemical-dependent practices, such as continuous corn, to crop rotations featuring legumes, such as alfalfa and clover, and small grains, such as rye (Goldstein and Young). Use of such crop rotations can often improve soil fertility, reduce need for herbicides and insecticides, and decrease soil erosion. An increasing number of individuals and organizations are advocating changes in the provisions of price support policies to remove the disincentive to low-input sustainable agriculture. Some are also calling for a kind of "crop insurance" to protect innovative farmers seeking to adopt low-input methods on their farms.

Regardless of whether any of these policy changes are made, however, it appears clear to this author that the need for publicly funded research and education on

low-input sustainable farming methods and systems will continue and increase. One would hope, however, that the principles underlying LISA would ultimately become the norm for most of the publicly funded research and education activity in the land grant institutions, Agricultural Research Service, and elsewhere in the agricultural technology delivery system. If this change in orientation were to occur, there would no longer be any need for a special program called LISA. Such a change in philosophy does not appear likely to occur soon. Meanwhile, LISA is serving as a catalyst to draw an increasing number of research and extension personnel, farmers, and staff of various public agencies and private organizations into team efforts that transcend long-standing barriers to cooperation. As long as such team efforts are attractive, and as long as agriculture is a major source of water contamination, environmental damage, and human health risk, the need for the approach represented by LISA will remain strong.

References

Gips, Terry. Breaking the Pesticide Habit--Alternatives to 12 Hazardous Pesticides. St. Paul, MN: International Alliance for Sustainable Agriculture, 1987.

Goldstein, Walter A. and Douglas L. Young. "An Economic Comparison of a Conventional and Low-Input Cropping System in the Palouse." American Journal of Alternative Agriculture. Vol. II No. 2, pp. 51-56. 1987.

Hearne, Shelley A. Harvest of Unknowns--Pesticide Contamination in Imported Foods. New York: Natural Resources Defense Council, 1984.

Madden, Patrick. "LISA 89

Guidelines." U.S. Dept. Agr., Coop.
State Res. Serv. 1988.

Madden, Patrick and Paul O'Connell.
"Guidelines for Preparing Regional
Plans of Work on Low-Input Farming
Systems Research and Education."
U.S. Dept. Agr., Coop. State Res.
Serv. Feb. 16, 1988.

National Research Council.
Pesticide Resistance--Strategies and
Tactics for Management. Report of
the Committee on Strategies for the
Management of Pesticide Resistant
Pest Populations, Board of
Agriculture, National Academy of
Sciences. Washington, D.C.:
National Academy Press. 1986.

Reichelderfer, Katherine. "A Survey
of Resource and Environmental
Policies Affecting Agriculture,"
Agricultural Outlook. May 1988. pp.
11-16.

Stokes, C. Shannon and Kathy D.
Brace. "Agricultural Chemical Use
and Cancer Mortality in Selected
Rural Counties." Journal of Rural
Studies. Vol. 4 No. 3, pp 239-247.
1988.

Low Input Agriculture in the Corn Belt in 1985

by Richard F. Nehring 1/

Considerable increases in use of agricultural chemicals have contributed to production gains in Corn Belt agriculture in recent years. However, low input agriculture, which would reverse recent trends in per acre chemical consumption, is receiving increased attention because of concern about the potential environmental impacts of high levels of fertilizer and pesticide applications (Nielsen and Lee). Modern intensive Corn Belt agriculture, which has contributed to abundant harvests, but also surpluses of corn and soybeans, may now be in conflict with a sound environment in many parts of the Corn Belt.

The proportion of corn acres treated with herbicides increased from less than 30 percent in 1960 to about 95 percent in 1985. Insecticides were used on nearly 40 percent of the acreage in 1985, up from 10 percent in 1960. Increases in pesticide use were also dramatic for wheat and soybeans. Nitrogen fertilizer application rates for corn doubled between 1960 and 1985 to nearly 150 pounds (Vrooman). Also, increasingly popular moderate-till and no-till practices may have contributed to higher doses of fertilizer and herbicides per acre (USDA Agricultural Outlook December 1988). At the same time average yields for corn in the Corn Belt also doubled to nearly 130 bushels

per acre. Soybean yields rose from 30 to 35 bushels per acre, and wheat yields moved up 10 bushels to 40 bushels per acre between 1960 and 1985. In many cases farmers enhanced profits by adopting new seed technology and increasing fertilizer and pesticide use. However, in some instances adoption of input-intensive agricultural practices may have involved costs rising faster than returns (USDA Farmline 1988; Helmers, et al.). Perhaps more importantly, recent evidence suggests that input-intensive agriculture has contributed to nitrates and pesticide residues in some surface and groundwater supplies, soil erosion and compaction, inflexible crop rotations, human and livestock health problems, and the appearance of pesticide-resistant pests. The adoption of low input sustainable agriculture (LISA) or alternative agriculture has been suggested as an alternative to intensive use of chemicals and fertilizer. Agricultural practices included under the rubric of alternative agriculture include integrated pest management, biological pest control, different crop rotations, lowered input use, and organic farming. In general, alternative agriculture involves new approaches that substitute knowledge and managerial skills (and land, if new rotations are involved) for fertilizer and pesticide inputs. Recently, Iowa took the step of imposing a small tax on fertilizer purchases to educate farmers on the potential harmful impacts of nitrogen overuse, recognizing the public benefits of decreasing nitrate contamination of

1/ The author is an agricultural economist with the Resources and Technology Division of USDA's Economic Research Service.

groundwater supplies. Proponents of low input agriculture claim economic benefits to farmers for adopting the practices as well as reduction in offsite environmental impacts (Buttel, et al., American Journal of Alternative Agriculture; Helmers, et al.).

This article summarizes an examination of producers' expenditures for fertilizer and chemicals by cropping patterns in the U.S. Corn Belt in 1985 using U.S. Department of Agriculture Farm Costs and Returns Survey data. The article also raises relevant policy issues involved in preventing nitrate pollution of groundwater (Nehring). The setting is the Corn Belt, including Illinois, Indiana, Iowa, Missouri, and Ohio, with cropping systems that include primarily corn or corn/soybeans to cropping systems that also include small grains, primarily oats or wheat (often as a cover crop for hay), and farms that usually include livestock. The Corn Belt accounts for close to 60 percent of the total U.S. corn and soybean production. Corn Belt farms hold about 15 percent of U.S. cattle and about 55 percent of the nation's hogs (USDA 1987).

Evolution of Cropping Patterns in the East-central Corn Belt

Historically, alternative agriculture has been less profitable to many Corn Belt farms because production and/or yields, and thus returns per acre, were reduced by lower use of fertilizer and chemicals or by crop rotations that use land less intensively (Cochrane). Because of these concerns, farm programs locking in base acres of corn, and changes in relative prices between 1950-1985, many Corn Belt farms switched from low input crop rotations, including hay and oats, to continuous corn or corn/soybeans (USDA 1953; 1987). As

a consequence, hay area fell (although much of the decline appears to have occurred before 1970) by close to 40 percent, with large declines in Iowa and Indiana reinforcing a small decline in Missouri during 1950-1985 (including a noteworthy trend toward more hay area in Missouri after 1960). Oat area fell by more than 90 percent to the lowest levels in a century and wheat area declined by close to 45 percent. At the same time, soybean area increased more than 210 percent and corn area by almost 25 percent.

In general, changes in crop area in the Corn Belt have been greater than for the United States. Concomitantly cattle numbers in the Corn Belt rose far less rapidly than for the United States. Hog numbers, though falling less rapidly than in the United States, fell to below 1950 levels, with most of the decrease occurring between 1970-1985. Given that the number of farms decreased 50 percent to 485,000 between 1950-1985, these data support the pattern of increasing specialization of Corn Belt farmers. It appears that most farmers successfully employed crop rotations that emphasized corn and soybeans, and that required higher levels of fertilizer and chemicals (herbicides and insecticides) and also, to a limited extent, shifted out of livestock to maximize yields and profits (Buttel, et al., American Journal of Alternative Agriculture; Wisner).

Specialization has been attractive to Corn Belt farmers with higher returns outweighing the greater risk. While most farmers may have successfully employed such systems, farmers, in general, appeared to have reached peak fertilizer application rates in the 1980's even as crop-to-fertilizer price ratios strengthened a bit (Vroomen). Between 1980-85 application rates per acre of corn in the Corn Belt stagnated at 310

pounds of nitrogen (N), phosphorous (P), and potassium (K), with a 9-percent fall in phosphate use offsetting a 6-percent increase in nitrogen use. The increase in hay area harvested and the decrease in corn area since 1960 indicate that non-row crop patterns appear to have become more popular in Missouri.

Except for the Great Plains, the Corn Belt likely has fewer alternative enterprises available than other regions. Relatively short growing seasons, compared to southern agriculture where there are opportunities for double cropping and many more horticultural and fruit crops, somewhat limit the potential for new crops and rotations in the Corn Belt. Although yields of conventional crops benefit from productive soils and reliable rainfall, overall there are, with the exception of the Wheat Belt, likely fewer feasible alternatives that can be adopted by farmers in the Corn Belt than in most other regions of the country. While parts of the Corn Belt involve large numbers of consumers for new and unusual products, most of the area does not. Also, many of the alternative enterprises are likely to be labor intensive. In many parts of the Corn Belt farm labor is often scarce during key planting and harvesting operations.

Hence, the question arises as to whether crops requiring less fertilizer and chemical inputs actually are becoming more widespread and are more profitable than corn/soybean and continuous corn cropping patterns in some parts of the Corn Belt.

Objectives and Results of the Analysis

Producer characteristics were identified by level of expenditure on fertilizer and chemicals in 1985 to assess the profitability and characteristics of different

cropping systems. Differences in yield and chemical use, returns per acre, and returns on assets and technical efficiency (Nehring, et al.) among low, medium and high chemical expenditure classes were analyzed within crop mixes for 2,122 Corn Belt farms.

Among the cropping systems in the Corn Belt four key crop mixes involving corn (C), soybeans (S), oats (O), hay (H), and wheat (W) were identified (table 1). These crop mixes account for over 92 percent of the cultivated area represented in the entire sample. Other important crop mixes include specialized soybean farms and mixes with sorghum/soybeans/oats/hay. For each of the four crop mixes, the total output mix was broken down into livestock and non-livestock operations in order to allow comparison of low, medium, and high chemical expenditure classes among homogeneous operations.

Observations reflecting low-input expenditure (less than \$20 of expenditures on fertilizers and chemicals per cultivated acre), accounted for 12.5 percent of cultivated area, medium input (\$20-50) agriculture for 65.0 percent, and high input (more than \$50) agriculture, 22.5 percent of cultivated area.

For the crop mixes analyzed, corn accounts for 46.9 percent of cultivated area; soybeans, 35.7 percent; wheat, 4.3 percent; hay, 3.5 percent; oats, 1.6 percent; government reserve, 5.2 percent; and other crops, 2.8 percent. All crop mixes except C/SB/O/W/H, where soybeans are as important as corn, are dominated by corn. Of cultivated acres, 55.4 percent were rented. Over 40 percent of total revenue were derived from livestock.

The purpose of this study is to compare economic differences in input use for conventional and low input users within the same probability based-data set and to consider substitution effects on the entire farm enterprise. Given the probability nature of the sample it is possible to make statistical inferences to the entire population of farmers in the Corn Belt regarding the extent, profitability, and technical efficiency of farmers using low versus high levels of chemicals and fertilizer. Corn Belt farmers achieved record corn yields in 1985 due to good weather and also used record levels of nitrogen. Output prices declined somewhat from the previous year for corn, soybeans, wheat, cattle, and hogs; prices for key inputs purchased off-farm also declined somewhat. The government program for corn farmers was modified to reduce loan rates and freeze base yields. It is not clear how commodity and input price movements, government program changes, soil type, and weather influenced the results of this study. Clearly, examination of high, medium, and low users and these factors for somewhat different crop mixes in additional years is necessary.

The statistical results indicate that farms spending less than \$20 per cultivated acre on fertilizer and pesticides represent 12.5 percent of the total cultivated area (row crops, small grains plus hay land) within the crop mixes examined. Although some of these farmers may have purchased in the previous year, they are, nonetheless likely using relatively low levels of fertilizer and chemicals, because they are reporting relatively low yields (Nehring). Also, farms reporting low expenditures on fertilizer and chemicals tend to be smaller than conventional farms. More than 12 percent of farmers reported no expenditures on

chemicals, including nearly 14 percent of C/SB farms (Nehring). Low input expenditure livestock farms, in general, exhibited a higher level of technical efficiency than high input expenditure livestock farms. One of the technical efficiencies that such low expenditure livestock farmers may be achieving is substitution of manure for chemical fertilizer.

For most crop mixes the information on returns on assets and the technical efficiency rankings suggest that the low (less than \$20 of expenditures on fertilizers and chemicals per cultivated acre), or medium (\$20-50) fertilizer and chemical expenditure levels within crop mixes tend to be consistent with relatively high rates of return on assets and returns per acre, and that these enterprises are relatively technically efficient compared to those with high input expenditures (more than \$50) within the crop mix (table 1). The results suggest that if medium level users of fertilizer and chemical, representing 65 percent of the sample, are profit maximizers, some high input users are not.

High expenditure crop mixes that have statistically significant low rates of return on assets, compared to low and medium expenditure levels include C/SB/O/H, C/SB, and specialized corn operations with livestock. These high expenditure farms account for about 8 percent of total cultivated area in the Corn Belt, or close to seven million acres, and exhibit lower technical efficiency (with the exception of C/SB/O/H) and lower returns per acre than those farms with low or medium input expenditure levels. The C/SB results are statistically significant for all three economic comparisons; for C/SB/O/H and specialized corn operations only the returns on assets are significant. Hence, the statistical evidence is suggestive,

Table 1. Economic comparison of high, medium, and low groups by cropping pattern 1/

Mix	Net Returns per acre Dollars			Returns on Assets Percent			Efficiency Level Percent		
	Low	Medium	High 2/	Low	Medium	High	Low	Medium	High
C/SB/O/H									
LVST>0	76.84 (49) 4/	67.81 (131)	39.89 (30)	11.0*3/	7.0	3.0	67.46	67.38	69.21
LVST=0	52.66 (6)	53.94 (18)	76.95 (5)	7.0	5.0	7.0	67.36	65.02	64.12
C/SB									
LVST>0	119.85* (32)	86.10 (148)	60.48*** (48)	14.0*	10.0**	4.0***	63.19*	60.34**	55.24***
LVST=0	77.61 (21)	92.79 (117)	109.41 (38)	13.0*	13.0	8.0***	65.24	60.02	61.68
C									
LVST>0	30.03 (16)	112.65 (88)	101.28 (206)	1.0	11.0**	5.0***	57.00	57.35	55.56
LVST=0	— (2)	105.09 (19)	122.58 (34)	—	13.0	10.0	—	61.49	60.57
C/SB/O/W/H									
LVST>0	68.69 (36)	64.07 (224)	114.42 (89)	14.0*	8.0**	8.0	71.39	71.18	69.99
LVST=0	78.08 (18)	73.16 (76)	80.21 (30)	13.0	10.0	7.0***	72.04	72.88	70.09

1/ C/SB/O/H = corn/soybeans/oats/hay; C/SB = corn/soybeans; C = specialized corn operations; C/SB/O/W/H = corn/soybeans/oats/wheat/hay; LVST = livestock operations.

2/ Low expenditures defined as less than \$20 spent on fertilizer and chemicals per cultivated acre; 180 observations for 4 cropping patterns, representing 9.10 million acres. Medium expenditures defined as \$20-50 spent on fertilizer and chemicals per cultivated acre; 821 observations for 4 cropping patterns, representing 47.56 million acres. High expenditures defined as more than \$50 spent on fertilizer and chemicals per cultivated acre; 480 observations for 4 cropping patterns, representing 16.46 million acres.

3/ Statistically significant at the 5 or 10 percent level: * = low versus high; ** = low versus medium; *** = medium versus high.

4/ Number of observations in sample by expenditure level and cropping pattern. The statistically significant results hold for alternative definitions of net income, with and without government payments. Means of returns per acre and return on assets were tested after adjustment for the complex nature of the survey design using weighted observations (see Nehring).

if inconclusive. For some crop mixes, high expenditure, inefficient farms, may have an incentive to pare back use of fertilizer and chemicals to increase profits in the short run. Taxes like the one imposed on fertilizer in Iowa or removal of commodity programs that discourage rotations could provide further incentives. (Even if returns on alternatives appear superior to participation in the current corn program in a given year, farmers are discouraged from leaving the program, and growing more soybeans or some other crop because this would involve losing part of their base corn acreage). One way that corn/soybean producers may pare back is by giving greater credit to nitrates released by soybeans grown before corn in the rotation (Voss and Shrader). To the extent some farmers are yield maximizers fertilizer use could be pared back by replacing yield maximization goals with profit maximization strategies (Peterson and Voss).

For the remaining crop mixes, the information on returns on assets and returns per acre is less clear cut and statistically weak. For example, the highest returns per acre are exhibited by specialized corn farms without livestock, even though these farms have lower returns on assets than medium expenditure farms. The results also indicate that, while the highest returns per acre for any crop mix occur on high expenditure specialized corn farms, these farms, when analyzed as a farm enterprise, exhibit relatively low technical efficiency, compared to 71.19 percent for the entire sample analyzed. In all remaining cases, low expenditure farms show higher technical efficiency than large farms. The inconclusive nature of these results and the statistical insignificance of most comparisons suggests that these crop mixes merit further research.

LISA: Policy Issues and Conclusions

Much attention has been devoted to LISA in recent years but policy proposals have tended to lack focus (Babb and Long). This situation reflects the lack of agreement on a precise definition of LISA and failure to reach agreement on the problem or set of problems with conventional agriculture (see Browne in this issue). It is clear that the major components of LISA -- reduction in purchased inputs, the environmental non-sustainability of many practices used in conventional agriculture, the scope for production of unconventional commodities, and enterprise diversification differ by agroclimatic zone within the Corn Belt and across regions of the country. For example, within the Corn Belt, continuous corn and corn/soybean rotations are more sustainable, leading to fewer environmental and economic impacts in central Illinois than in central Missouri because of the far gentler slopes and less soil erosion, in general, in Illinois compared to Missouri. Returns to specialization, and hence, constraints on diversification, may be higher in the Corn Belt than in other regions like the South. Just as importantly, problem recognition and policy formulation is likely to differ in the agricultural establishment and in the general public. Erosion and its on-farm and off-farm adverse impacts are more of an issue in southern Iowa than northern Iowa or central Illinois. Contamination of groundwater supplies by nitrates did not become an issue for many Corn Belt farmers until nitrates showed up in drinking water used for livestock, even as evidence of nitrate contamination in ground water supplies was mounting (Hallberg; Papendick et al.). Protection of groundwater, which

supplies water to most of the rural human and livestock population and more than half of the urban population, from nitrates and other pollutants is now a priority environmental issue (Olsenius). Although there is a need for further research on the effects of nitrate pollution on groundwater, it is now generally accepted that the effects of nitrate pollution of groundwater is negative. While there may be exceptions, (see England), prevention is likely less costly than cure.

Recognition of the problem of nitrate contamination of groundwater supplies and formulation of appropriate policies to address the problem is illustrative of the challenges of adopting LISA. Agricultural production involves production of not only corn or soybeans or wheat, but on-and off-site pollutants, an externality which leads to a social cost. This situation raises the question of how to rationally allocate costs of pollution prevention and control measures. Hence, the concept of formulating policies that encourage environmentally sound practices and impose part or all of the cost of nitrate contamination of groundwater on farmers has been based on the notion that the polluter pays (Batie).

Under a polluter-pays principle, a range of policies--reflecting sensitivities in both the agricultural and non-agricultural sectors and different environmental, efficiency and equity outcomes--are possible. First, policies to control nitrates may focus on outputs or inputs. In general, input-oriented policies are likely to be more effective than output policies in reducing fertilizer use because the intervention is more direct. Aspects of the current corn program, such as price supports and base acreage provisions for corn, as pointed out above, discourage

rotations, boost intensive use of inputs, and may encourage farmers to pursue yield maximization that leads to a higher use of nitrogen than is consistent with profit maximization. Alternatively, deficiency payments could be linked to land use practices including a cap on nitrogen applications per acre or support of crop diversification. Set aside programs, which decrease use of nitrates and other inputs, could also produce environmental benefits, particularly in marginal production areas. An effective set of policies to control nitrogen use and contamination of ground water supplies would have to rationalize such output policies with polluter-pays policies on nitrogen.

Feasible input policies to address the problem of nitrate contamination in groundwater include persuasion and education; taxes and quotas; and regulation. Persuasion and education are consistent with sensitivities of the agricultural community and may be very effective in reducing nitrogen use. For example, this study suggests that farmers who grow corn/soybean rotations and with high expenditures on chemicals and fertilizers may be following a yield maximization objective. If so, the marginal value product of fertilizer is below the cost of fertilizer. Risk aversion and lack of knowledge may provide one explanation of this behavior. Education about the potential for higher profits with less nitrogen coupled with better information, among other things, about nitrogen testing (including free soil tests), and legume (soybean) nitrogen credits could result in a reduction in nitrogen use. Studies in Nebraska and Iowa suggest that such over-use by maximizing yields rather than profits may be 25 to 50 percent (Hallberg).

A tax on nitrogen fertilizer can also produce environmental

benefits by decreasing use. This decrease not only results from the higher cost of fertilizer, depending on the fertilizer input elasticity of demand, but on competitive impacts on other inputs, and output supply impacts. Substitution effects may include higher use of animal manure, which may also lead nitrate contamination if not managed properly (as noted below), for chemical fertilizer. However, implementation of such a tax may be troublesome. While the level of reduction of nitrogen use required to address the nitrate contamination problem is uncertain, even small reductions in use are likely to require a relatively stiff tax given the relative inelasticity of demand for fertilizer (Nehring). Also, the equity impacts of a tax are uncertain. Available studies indicate that producers in the Corn Belt would benefit if lower quantities and higher prices occur in the inelastic portion of the demand curve for corn while consumers would suffer a loss in consumer surplus (Taylor and Frohberg). Quotas may be used in lieu of taxes and would involve another set of efficiency and equity impacts. Because quotas would be likely to vary between regions and depend on the crop rotations they promote, their implementation also appears troublesome.

Regulation rather than taxes or quotas may also be desirable to control ground water contamination by nitrates. Regulations may be more precisely targeted and do not require as much information about the relationship of nitrogen use to ground water quality and are not as sensitive to variations in prices and may be in some, but by no means all cases, less costly to administer than taxes or quotas. Farmers may, for example, be required to prepare plans that include management of nitrogen or a green cover to participate in farm programs (so

called cross compliance). Or, they may be induced to build animal manure storage facilities capable of storing manure for long periods and to restrict manure disposal on water catchment areas. Property transfer restrictions may be used to influence use. Finance companies may be required to have wells certified when property is transferred (Olsenius).

State, local, and regional implementation of policies may be involved. Currently much of the data on ground water contamination by nitrates is collected at the state and local level (Batie). Federal legislation may coordinate state and local land use policies. The Water Quality Act of 1987, an amendment to the Clean Water Act, already involves a State and Federal partnership regarding surface water body classifications and standards and may serve as a model for ground water issues (Duda and Johnson; Reichelderfer). Contamination of ground water by nitrates has increasingly been recognized as a serious problem resulting, in part, from a productive conventional agriculture. A number of policies may be required to address the problem. Other issues involved in the adoption of LISA, such as erosion control, involve another set of problems and policies which must be addressed and coordinated with other input and output policies (McSweeney and Kramer).

The previous discussion suggests that, while there may not be a massive number of farmers shifting to low input agriculture in the Corn Belt in the near term, farmers following certain crop mixes may be able to pare back expenditures on fertilizer and chemicals and improve profitability. Alternatively, should more state legislatures, or, should a regionwide policy be implemented that, among other things, imposes taxes on fertilizer and/or

chemicals, the analysis suggests that farmers, following some crop mixes, may adopt aspects of LISA and still be able to remain profitable as they pare back fertilizer or chemical use. Further information on the results presented in this study are available on request from the author (Nehring).

References

Babb, E. M., and B. F. Long, "The Role of Alternative Agricultural Enterprises in a Changing Agricultural Economy" Southern Journal of Agricultural Economics, July(1987):7-20.

Batie, Sandra, "Agriculture as the Problem: New Agendas and New Opportunities," Southern Journal of Agricultural Economics, July(1988):1-11.

Cochrane, Willard W., The Development of American Agriculture. University of Minnesota Press, Minn., Minn, 1979.

Buttel, Frederick H., Gilbert W. Gillespie, Jr., Rhonda Janke, Brian Caldwell, and Marianne Sarrantonio. "Reduced-input Agricultural Systems; Rational and Prospects, American Journal of Alternative Agriculture. Vol. 1., No. 2(1986):58-64.

Buttel, Frederick H., Gilbert W. Gillespie, Jr., Rhonda Janke, Brian Caldwell, and Marianne Sarrantonio. "Reduced-input Agricultural Systems; A Critique, The Rural Sociologist. Vol. 6., No. 5(1986):350-70.

Duda, A.M. and R.J. Johnson, "Targeting to Protect Groundwater Quality, Journal of Soil & Water Conservation. Vol. 42, No. 5(1987):325-30.

England, R.A., "Reducing the

Nitrogen Input on Arable Farms," Journal of Agricultural Economics. Vol. XXXVII, No. 1(1986):13-24.

Hallberg, George, "Agricultural Chemicals in Ground Water: Extent and Implications," American Journal of Alternative Agriculture, Vol. II. No. 1(1987):3-15.

Helmers, Glenn A., Michael R. Langemeier, and Joseph Atwood. "An Economic Analysis of Alternative Cropping Systems for East-Central Nebraska," American Journal of Alternative Agriculture. Vol. 1, No. 4(1986):153-58.

McSweeney, William T., and Randall A. Kramer, "The Integration of Farm Programs for Achieving Soil Conservation and Nonpoint Pollution Control Objectives," Land Economics. Vol. 62. No.2(1986):159-73.

Nehring, Richard F., "An Economic Assessment of Low Input Agriculture in the Corn Belt in 1985-87," U.S. Dept. of Agr. Technical Bulletin, forthcoming (a).

Nehring, Richard F., Linda Atkinson, and David Banker. "Measurement of Technical Efficiency by Farm Size in The United States Corn Belt," U.S. Dept. of Agr. Technical Bulletin, forthcoming (b).

Nielsen, Elizabeth G. and Linda K. Lee. The Magnitude and Costs of Groundwater Contamination from Agricultural Chemicals; A National Perspective. USDA, Econ. Res. Serv., Agr. Econ. Report No. 576, Oct. 1987.

Olson, K.R. and E. Nizeyimana. "Effects of Soil Erosion on Corn Yields of Seven Illinois Soils." Journal of Production Agriculture. Vol. 1, No.1 (1988):13-19.

Olsenius, Christine. "Groundwater Quality: A Catalyst for a New Land Management Ethic." Annual

Agricultural Outlook Conference.
U.S. Dept. of Agr., Washington,
D.C., November, 1988.

Papendick, Robert I., Lloyd F.
Elliott, and James F. Power,
"Alternative Production Systems to
Reduce Nitrates in Ground Water,"
American Journal of Alternative
Agriculture, Vol 2. No.1(1987):19-
24.

Peterson, G. A., and Regis D. Voss,
"Management of Nitrogen in the West
North Central States," reprinted
from Nitrogen in Crop Production.
ASA-CSSA-SSSA, Madison, WI, 1984.

Reichelderfer, Katherine H. "Water
Quality Legislation Affecting
Agriculture." Annual Agricultural
Outlook Conference. U.S. Dept. of
Agr., Washington, D.C., November
1988.

Taylor, Robert C. and Klaus K.
Frohberg, "The Welfare Effects of
Erosion Controls, Banning
Pesticides, and Limiting Fertilizer
Application the Corn Belt," American
Journal of Agricultural Economics.
59(1977):25-36.

U. S. Department of Agriculture.
United States Government Printing
Office. Agricultural Statistics
1953. Washington, D. C., 1954.

U. S. Department of Agriculture.
United States Government Printing
Office. Agricultural Statistics
1987. Washington, D. C., 1988.

U. S. Department of Agriculture.
Economic Research Service.
Agricultural Outlook. Washington, D.
C., May 1988.

U. S. Department of Agriculture.
Economic Research Service.
Agricultural Outlook. Washington, D.
C., December 1988.

U. S. Department of Agriculture.

Economic Research Service. Farmline.
Washington, D. C., 1988.

Voss, R.D. and W. Shrader. Crop
Rotations: Effect on Yields and
Response to Nitrogen. Iowa State
University. Cooperative Extension
Service. Ames, Iowa. 1982.

Vroomen, Harry. Fertilizer Use and
Price Statistics, 1960-85. U.S.
Dept. of Agr., Econ. Res. Serv.,
Agr. Stat. Bul. No. 750. Feb. 1987.

Wisner, Robert N. The Changing
Structure of U.S. Corn and Feed
Grain Farming. Committee on
Agriculture, Nutrition, and
Forestry, United States Senate.
Washington, D. C., 1980.

Alternative Opportunities for U.S. Farmers: A Renewed Force In U.S. Agricultural Policy

Michael R. Dicks and Neill Schaller¹

Introduction

Faced with a more competitive market for traditional commodities, new environmental regulations and increasing production costs, American farmers have struggled to survive in the 1980's. This struggle has led to the emergence of several alternatives. Some farmers are diversifying into new enterprises such as aquaculture and "industrial crops." Others are changing their approach to producing traditional crops from high-input intensively cultivated monoculture to low-input or sustainable multiculture. The diversification process has been slow and limited to a few products in select locations of the United States. For instance, many farmers in northwestern Mississippi have switched from producing cotton and soybeans to catfish. In fact, catfish has become the predominate industry in northwestern Mississippi as U.S. production during this decade has expanded from about 70 to 370 million pounds (Dicks and Harvey).

Farmers have succeeded in developing other alternatives as

well, including the production of fruits, vegetables, nuts, horticultural crops and high quality hay and forages for local markets, substitution of legumes into rotations for nitrogen fertilizers, and the production of crops used for industrial products.

Why are Alternatives Necessary?

To survive economically, U.S. farmers will need alternative opportunities including the development of new markets for traditional crops and new agricultural products. The need to develop alternatives to traditional agricultural markets and products stems from more competition in the markets for traditional commodities (barley, corn, cotton, sorghum, soybeans, wheat), a reduction in the future level of government assistance spurred by spending constraints, and increasing social pressure for higher levels of environmental quality.

Over the last 7 years, agriculture's balance of trade fell from a \$23.6-billion surplus to a \$1.9-billion deficit. A drop in the export volume and price of food and feed grains led to a \$16.4-billion decline in the value of total agricultural exports between 1981 and 1987. Exports of food and feed grains declined from \$31.6 to \$15.8 billion during the same period. Imports increased \$9.1 billion between 1981 and 1987. Imports of forest products showed the largest gain (\$4.3 billion), followed by edible fish (\$1.8 billion), animal products (\$1.4 billion) and fruits, vegetables, and nuts (\$1.2 billion).

1/ The authors are agricultural economist with ERS's Commodity Economics Division and Program Leader, Special Projects, Cooperative State Research Service, U.S. Department of Agriculture.

The decline in export volume has placed the burden of marketing surplus production on government. The escalating cost of this burden has increased support for continuous reduction in government intervention in agriculture. The 1985 Food Security Act (FSA) was designed to move the agricultural sector towards a free market orientation by reducing government intervention. Target prices for all program crops (barley, corn, cotton, oats, rice, sorghum, wheat), which provide farmers with a guaranteed level of income, are to be reduced by almost 10 percent below their 1987 level by 1990. If export demand for these commodities does not rise substantially, this continuous reduction in target prices will mean declines in farm income, unless output is reduced. The 1985 FSA also calls for a reduction of the price per unit at which government will provide loans to enable farmers to hold their crops for later sale (loan rate). This will reduce cash available to cover the current season harvest costs and following season planting costs.

A reduction in excess capacity (the difference between what farmers could have produced and the amount that could be cleared by the commercial market) would reduce the need for government intervention. According to Dvoskin (1987), excess capacity in the seven major crops (barley, corn, cotton, oats, sorghum, soybeans and wheat) has remained at an unprecedented 20 percent since 1985. Dvoskin maintains that this situation can be attributed to high yields which result from the increased use of agricultural inputs.

Szmedra (1986) estimates that \$3 billion was spent on pesticides in 1984, as use increased five-fold since the 1950's. This \$3-billion expenditure saved an estimated \$12 billion in commodities from losses due to competing weeds, insects,

fungi, rodents, bacteria, and other pests. Use of chemical nutrients (nitrogen, phosphate, and potash) has also increased from a total of 7.5 million nutrient tons in 1960 to a record high of 23.7 million nutrient tons by 1981, an increase of over 217 percent. This increased use of agricultural chemicals, continued surplus production of traditional commodities, and the environmental degradation associated with the two events has provided renewed support for new environmental legislation.

Enactment of the 1985 Food Security Act's Conservation Title, the 1987 Water Quality Act, and amendments to the Federal Insecticide, Fungicide and Rodenticide Act, and the Endangered Species Act will compel farmers to move towards more conservation-oriented and environmentally conscious farming. Once fully implemented, the net impact of these and other environmental regulations can be expected to reduce the profitability of producing crops with traditional methods (chemical inputs, monoculture, and conventional tillage).

New Opportunities for U.S. Farmers

The U.S. Department of Agriculture has begun to devote resources in four general areas to uncover new ways for U.S. farmers to utilize their land resources. These alternative opportunities include development of agriculture-based industrial materials, aquaculture and mariculture (fish and shellfish) products, low-input or sustainable agriculture, and biotechnology. These new opportunities may also reduce the U.S. balance of trade deficit by substituting locally produced products for imported goods, lower government expenditures for supply control, and reduce environmental degradation resulting from agriculture.

Industrial Crops

Developing agricultural products for the Nation's industrial base will provide farmers with an increased variety of crops and less dependency on traditional agricultural markets. Nine crops have already shown significant potential as sources of industrial materials and are slated for commercialization over the next 3 to 5 years (table 1). About 100,000 acres of these crops were in production in 1987. Another 4 crops are currently being examined with commercialization likely in the next 5 to 15 years. These crops yield products which can substitute for existing industrial inputs such as rubber, whale oil, resins, plasticizers, and binders. Some of these crops, such as kenaf (see sidebar) and jojoba are currently being integrated into existing industries. Kenaf, a woody plant, is the source of fiber for use in manufacturing newsprint and paper and board products, which we currently import at a cost of \$7 billion annually. Jojoba, a producer of high grade oils used in soaps, shampoos, and machinery lubricants, has displaced the production of dryland grains in California and Arizona.

Other industrial crops such as crambe (produced in the Corn Belt) and winter rapeseed (produced in the northwest) produce an industrial oil utilized in the production of nylon, plastic, and lubricant products. These two crops are currently in production on a limited scale, substituting for wheat, corn and soybeans.

The first U.S. plant extracting rubber from guayule is under construction in Texas. Guayule could displace some cotton and sorghum in the southwest. The industrial crops currently being

USDA Resumes Research on Kenaf, Potential Source for Newsprint

After a 10-year hiatus, research on growing and using the kenaf plant as a new domestic source of newsprint and other products is resuming at USDA's Agricultural Research Service (ARS). This year, \$300,000 will be invested in kenaf studies through agency labs in Oklahoma and Texas. Another \$300,000 will be invested next year. Since 1986, ARS and USDA's Cooperative State Research Service have invested about \$900,000 in support for commercializing kenaf through private industry.

Researchers at ARS indicate that kenaf, a fast-growing annual plant, could become a new cash crop for farmers, while serving as a supplemental source of newsprint. In 1987, U.S. newspapers used more than 12 million metric tons of paper, two-thirds of which was imported. Industry trials, including test runs by several U.S. newspapers, indicate that pulp from kenaf makes newsprint paper that is as sturdy as wood-pulp paper but generally is brighter, consumes less ink and has less ink ruboff.

Kenaf can be grown in southern U.S. areas such as Texas, Florida, Georgia, Mississippi, and California.

utilized are at a stage similar to soybeans in the early 1950's. As these crops continue to show economic potential more research resources will be devoted to their utilization and the acreage devoted to each will expand.

Aquaculture

Consumer shifts in preference for fishery products as a substitute for other protein sources offers farmers an alternative production enterprise--growing fish and shellfish in ponds. Aquaculture will increase the demand for high protein feed grains, but may decrease the demand for low protein feed grains. The U.S. trade deficit for edible fish has increased 250 percent from \$2 to \$5 billion as per capita consumption of fish products has increased from 17 to over 20 pounds per capita in this decade. This increased demand and absence of growth in wild harvests of fishery products has helped the domestic aquaculture industry expand from about 200 to over 750 million pounds of production in this decade (table 1).

Aquaculture presents farmers with the opportunity for diversifying into products with a better marketing outlook and to more fully utilize their resources. It is not surprising that a large increase in production occurred in the 1980's, a period of low prices and surplus production of traditional farm commodities. Most aquaculturalists have established production facilities either by reducing the acreage used to produce traditional commodities or by moving completely out of the production of traditional farm commodities and concentrating their efforts on the production of one or more fish or shellfish species.

Catfish in the Mississippi Delta, crawfish from Louisiana, trout from Idaho, salmon from the pacific northwest, and shrimp in Hawaii and Texas are just a few of the aquacultural products which began in local markets and are now marketed nationally. Many new species such as tilapia, red drum (redfish), hybrid striped bass, paddlefish, muskie, walleye, and

carp are currently being commercialized.

Sustainable Agriculture

Sustainable agriculture is another way of thinking about agriculture and its links with people and their environment. Sustainable implies using available resources in such a way as to guarantee the continuous availability of those resources. Alternative, regenerative, organic, low-input, and farming systems agriculture are included within the scope of sustainable agriculture. While all of these alternatives have different ends and means, they share a common goal of producing agriculture products economically with minimal adverse effects upon human health, natural resources, environmental quality, and rural economies.

Although the number of farmers currently using some form of sustainable agriculture is unknown, an indicator of the extent of the movement can be seen in the statistics on conservation tillage usage. Conservation tillage includes the use of ridge, strip, reduced, mulch, and no-till. These methods of tillage are less intensive and a move away from conventional tillage such as spring and fall plowing. In 1980, conservation tillage occurred on less than 11 percent of total cropland. By 1986, it was practiced on almost 30 percent of total cropland (Magleby and Dicks).

The Potential For Alternative Opportunities?

Agricultural and environmental policies may interact in numerous ways depending upon sociopolitical and economic factors. Each program or policy will directly affect a particular group of farm producers, but may also indirectly affect the

input suppliers, output processors, consumers and rural communities. Alternative crops, products, production activities, and markets may interact with the various programs and policies in an antagonistic or synergistic way, or some combination.

Alternative opportunities have the potential to (1) provide alternative employment and income earning opportunities to farmers and rural communities, (2) develop new markets for domestic products, (3) develop new sources of inputs for industry and new products for consumers, (4) reduce the U.S. trade deficit, (5) reduce the adverse effects on human health and the environment associated with agriculture, and (6) reduce the need for government intervention in agriculture.

The potential amount of land that might be devoted towards aquaculture and industrial crops is not likely to be anywhere near the 70 to 100 million acres of excess capacity considered to exist in 1987 (Dvoskin). But it is conceivable that aquaculture which now uses almost 500,000 acres could eventually utilize 2 to 3 million acres. Land devoted to industrial crops could rise from about 100,000 acres to as much as 20 million acres over the next several decades as these products become fully commercialized. Moving towards sustainable agriculture could lower yields and costs of production, leaving farmers with higher returns and further reducing excess capacity.

The adoption of alternative opportunities by farmers will depend upon several factors including the prices of future inputs, commodities and new products, degree of government intervention, development of appropriate marketing infrastructures, availability of transition capital, and the availability of research and

extension resources.

Input, Commodity, and New Product Prices: Increasing levels of demand from either foreign or domestic sources for traditional commodities will increase the resistance of farmers to adopt alternative production strategies. However, a rise in the price of petroleum, agricultural chemicals, or industrial inputs (for which new crops may substitute), will induce farmers to consider alternatives. Prior to the 1988 drought, trends in input and commodity prices would support farmers decisions to consider alternatives.

Degree of Government Intervention: Certainly, commodity programs and environmental policy will play a major role in persuading farmers to consider alternatives to traditional production activities. As long as government support or income insurance is provided via a crop base, farmers will be reluctant to give up their crop bases for a new venture. However, if the conditions for obtaining government support continues to become more strict, vis-a-vis environmental regulations, farmers may be faced with trying alternatives or leaving agriculture. The Food Security Act, the Water Quality Act, the Federal Insecticide, Fungicide, and Rodenticide Act, and the Food, Drug, and Cosmetic Act give credence to the need for farmers to begin considering alternatives.

Development of Infrastructure: Knowledge of and access to markets is especially important for new products. New or stratified markets may be required so that farmers may be rewarded for growing new or premium products. New service industries such as water quality specialists in aquaculture may be necessary to maintain the growth and viability of new industries.

Available Credit: The transition from traditional agricultural activities to an alternative may require the purchase of new equipment (sustainable agriculture and industrial crops), land development (aquaculture), and possibly processing facilities. Capital resources and insurance with reasonable premiums must be available for farmers to adopt alternatives. This adoption process will be slower the tighter credit is, the more expensive insurance is, and the higher the investments required on land improvement (pond construction), buildings, machinery, or other fixed factors of production.

Research and Extension: Each of the new alternatives face numerous problems which must be solved before widespread adoption can occur. In aquaculture, diseases associated with high stocking rates, water quality and oxygen levels must be economically monitored and maintained. Feed efficiency must be improved and increased hybrid vigor attained through genetics research. Yields and harvesting methods must be improved to promote industrial crops and the economics of optimal systems for sustainable agriculture must be determined prior to promotion of these systems in lieu of conventional agriculture.

Until recently, farmers have performed most of the research and experimentation on these alternatives, sharing their results through informal networks, associations, publications, and field days. However, land grant colleges and USDA have begun to expand research programs in alternative opportunities. Regional research centers for aquaculture, sustainable agriculture and industrial crops have either been established or are currently being established.

Summary

Current developments do not indicate a wholesale departure from traditional agriculture, but rather a growing need for diversification. The next major farm legislation will likely increase the emphasis on conservation, environmental quality, human health, and food quality and continue the current trend of reducing government support for traditional commodities.

Diversification by traditional crop producers through the adoption of alternatives could have significant impacts on commodity prices and the economic viability of rural areas. Market structure and geographical distribution could change. Labor markets in rural areas may change as the demand for management will likely increase in response to the adoption of alternatives.

It is important to understand the synergistic effects of reducing government support for traditional agricultural commodities, increasing requirements for environmental quality, and the adoption of alternative opportunities on various agricultural sectors, markets and economies. Policymakers and implementing agencies will require information describing the potential actions and interactions of the various policies, programs and alternatives.

References

Dicks, Michael R. and David Harvey. Aquaculture Situation and Outlook, AQUA-1, Oct. 1988.

Dvoskin, Dan. Excess Capacity in U.S. Agriculture: An Economic Approach to Measurement, U.S. Dept. Agr., Econ. Res. Serv., AER-580, Feb. 1988.

Magleby, Richard and Michael R.
Dicks. "Soil Conservation,"
Agricultural Resources, Cropland,
Water and Conservation, Situation
and Outlook, AR-8. Oct. 1987. pp 16-
25.

Smezdra, Philip. "Major Changes
Coming in Pesticide Law,"
Agriculture Outlook, Oct. 1986, pp.
24-26.

Table 1. Alternative Opportunities: Industrial Products

Commercialization Time-Frame		
Less than 5 years	5-10 years	10-15 years
Crambe	Veronia	Lunaria
Cuphea	Lesquerella	
Guayule	Stokes aster	
Jojoba		
Kenaf		
Meadowfoam		
Tree crops		
Winter rapeseed		
Wood byproducts		
Crop	Substitutes for:	
Crambe	High erucic acid	
Cuphea	Coconut oil	
Guayule	Rubber	
Jojoba	Whale oil	
Kenaf	Newsprint	
Meadowfoam	High erucic acid	
Tree crops	Fuels, structural materials	
Winter rapeseed	High erucic acid	
Wood byproducts	Fuels, resins, additives	
Chinese tallow	Coconut and palm oil	
Lesquerella	Castor oil	
Stokes aster	Binders, plasticizers	
Veronia	Binders, plasticizers	
Lunaria	High erucic acid	

Table 2. Alternative Opportunities: Aquaculture

U.S. Supply and Use of Finfish, Shellfish, and Molluscs

	1980	1987
	Million pounds	
Commercial landings	3,654	3,946
Exports	570	783
Imports	2,145	3,201
Aquaculture	343	1,196
Recreation	1,486	1,690
Total consumption	7,038	9,250

Value of Production of Commercial Aquaculture in 1987

	Thousand dollars
Baitfish	53,059
Catfish	241,501
Clams	9,945
Crawfish	51,675
Mussels	2,002
Oysters	70,174
Pacific salmon	37,418
Shrimp and prawns	4,528
Trout	76,300
Other species	112,000
Total	658,602

Farming Alternatives in New York State

by Judy Green and Wayne Knoblauch 1/

Innovation, diversification, and adapting to change are not new ideas in agriculture. Over time, most farms have undergone numerous transitions in production, marketing, and management strategy. However, in recent years there has been increasing interest in farming alternatives, including nontraditional crops and livestock, new marketing strategies, innovative production systems, and a variety of farm-based small business options.

The growing interest reflects the desire of many farm families to find a way to continue farming in the face of declining returns from most major commodities. In fact, a recent survey showed that over 25 percent of New York farmers are planning to add or change enterprises in the near future (Bruce and McGonigal). In addition, many would-be farm families are looking to nontraditional enterprises as a way to get started in commercial farming, and to help support a rural lifestyle. It is not surprising that Extension agents in many counties have been besieged with inquiries about farming alternatives.

Opportunities for agricultural diversification and innovation in New York are really quite good, relative to other regions with limited access to markets. Proximity to the vast metropolitan population centers of the Northeast offers a competitive advantage for many perishable items, as well as a

rich diversity of ethnic and specialty markets for fresh and processed goods. Opportunities for marketing directly to the consumer or wholesale buyer abound, bringing significantly greater returns to the grower. The population density and scenic beauty of the region make possible a variety of farm-based service, recreation, and tourism enterprises.

New York's farming entrepreneurs are recognizing and capitalizing on these opportunities. They are raising nontraditional farm products such as fallow deer, salmon and trout, fresh-picked culinary herbs, seedless table grapes, turf, flowers, and ornamentals. They are developing innovative marketing strategies, including sophisticated on-farm retail operations and national mail order campaigns. They are developing organic methods, hydroponics, season extension technologies and other production innovations. They are adding value to raw products through the production of juices, wines, yogurt, specialty cheeses from cow, sheep and goat milk, maple syrup confectioneries, pesto, sauces and other gourmet processed foods, and hand-crafted floral, herbal, woolen, fur and hide products. And they are providing services and recreation with farm tours, on-farm restaurants, bed and breakfast inns, petting zoos, cross-country skiing and campgrounds. Some of these entrepreneurs, including the fallow deer farmers, herb growers, organic farmers and aquaculturists, represent the vanguard of emerging agricultural industries that may provide opportunities for many other farmers in the future.

However, the challenges facing agricultural innovators are many. Like other small business start-ups,

1/ The authors are an Extension Support Specialist and Associate Professor, respectively, Department of Agricultural Economics, Cornell University, Ithaca, New York.

a new farm-based venture requires resources, careful management, and hard work. It may involve considerable financial risk. And when the enterprise is an unusual one, the lack of information, technical and marketing support often places the innovator in the multiple roles of researcher, extension specialist, and marketing agent for other producers as well.

The Farming Alternatives Project at Cornell

The Farming Alternatives Project was initiated at Cornell in 1986 with the purpose of supporting New York's farming innovators. Working through the Cooperative Extension network, the Project helps families identify and evaluate new enterprise options and marketing strategies. Rather than simply dispensing information on specific alternatives, it emphasizes the decisionmaking process, and helps people develop the management and marketing skills necessary for successful farm diversification.

As one of its first activities, the Project conducted a series of four highly successful workshops for farm and rural families around the state. The workshops featured examples of successful farming entrepreneurs, and provided training in basic business planning, management and marketing to over 300 participants. Since that time, farmers, Extension agents, and other educators from around the nation have requested similar programming in their areas.

To meet the need, Project staff have developed a complete handbook for prospective farming innovators. Farming Alternatives: A Guide to Evaluating the Feasibility of New Farm-Based Enterprises takes the reader through a step-by-step analysis, using a case-study and workbook format to evaluate personal and family considerations, available

resources, alternative enterprise options, market potential, production feasibility, and cash flow. Extension agents, community college and SUNY faculty, and small business counselors have already used the handbook and accompanying video to provide education programming for hundreds of people in the Northeast.

In the future, the Project will continue to provide training and support to these educators, and to build linkages between Extension and the many other educational, economic, and small business development institutions that can assist the aspiring rural entrepreneur. Other objectives include compiling and making available specific information on the production, marketing and management of many alternative enterprises; supporting appropriate research and Extension initiatives; and fostering linkages between rural entrepreneurs in New York State.

Research Dispels Myths About Farming Alternatives

Surveys conducted by the Farming Alternatives Project have helped to dispel a number of myths about farming alternatives (Grudens Schuck et al; Green). The first is that only small farms are involved. Actually, among the 167 farms surveyed (each of which has developed some sort of alternative enterprise as described above), farm size ranges from less than one acre to over 4,000 acres, with a median size of about 100 acres.

A second myth is that alternative enterprises are just for part-time farms. In fact, 30 percent of the farms surveyed are full-time or nearly full-time farms, that is, the family relies on farm income for more than 75 percent of total household income. Even among conventional farms, most families today rely on off-farm income to

some extent.

A third myth is that only new or inexperienced farmers are getting into alternatives. But more than a third of these farming entrepreneurs grew up on a commercial farm, with the remainder divided roughly evenly between urban, suburban, and rural non-farm backgrounds. And the operators include many old-timers as well as neophytes, with a median of 11 years of active farming experience.

One of the most significant myths dispelled by the research is that farmers going bankrupt with a dairy or other traditional operation can save the farm by getting into a new enterprise. Of the innovative farms surveyed, only about 10 percent were experiencing major financial difficulties at the time they started their new enterprise. In contrast, almost 75 percent had no significant financial stress. This result confirms the common sense notion that farm families need to consider, plan and develop their alternatives well before financial disaster strikes. Unfortunately, many farmers who could benefit most from an alternative enterprise have already stretched their financial and personal resources too thin.

A final myth is that alternative enterprises are not profitable. Actually, 60 percent of the innovative enterprises were reported to be profitable in 1986, with 20 percent producing a "significant profit". However, economic feasibility is a real concern--almost 30 percent of the alternative enterprises in the study lost money. A relatively high proportion of the alternative livestock enterprises lost money. Service, retail, and tree crop enterprises fared better. Although over half of the unprofitable enterprises were less than 3 years old, and may turn a profit in the future, this underscores the risk and challenge involved in turning an

innovative idea into a profitable business. Clearly, further research on the economic feasibility of various alternatives is needed.

Farming Entrepreneurs Need Greater Support

In the meantime, these farming entrepreneurs are doing their own research--breaking new ground, testing new markets, and risking their own resources. Most are doing all their own marketing. On average, 86 percent of the 1986 sales of the alternative enterprises surveyed was marketed directly to the consumer or to restaurants and specialty stores. Marketing skill was, in fact, rated as the most important factor in the success of alternative enterprises, with production and business management skills rated second and third. Unfortunately, many farmers and Extension agents are inexperienced in marketing and business management. The workshops and materials developed by the Farming Alternatives Project are designed to improve these skills among agricultural entrepreneurs and the educators who work with them.

New York's farming entrepreneurs are working hard to create new opportunities for themselves and for other farmers. Meeting the information and technical assistance needs of such a diverse groups presents many challenges. But it also offers the opportunity for creative responses from the institutions that support New York's agriculture. Innovative research and Extension efforts, financing and risk-sharing programs, formation of producer cooperatives and farmers markets, and vigorous state-assisted marketing programs will help turn many "farming alternatives" into viable new industries for New York.

References

Bruce, Robert L. and Jane W. McGonigal. "A Preliminary Report of a Survey of New York State Farm Families". Hatch Project #137440. Ithaca, NY: Cornell University. 1986.

Grudens Schuck, Nancy, Wayne A. Knoblauch, and Judith Green. "Farming Alternatives: Results of a Survey of Extension Field Staff Regarding Alternative Farming Enterprises". Ithaca, NY: Cornell University. 1986.

Green, Judy. "Preliminary Results of a Survey of Agricultural Innovators in New York State". Ithaca, NY: Cornell University. 1988.

ALTERNATIVES FOR FARM LABOR AND MANAGEMENT:
FARM WOMEN IN FLORIDA

by Christina H. Gladwin 1/

In the early 1980's, the role of U.S. farm women was rediscovered by film-makers in such movies as Country, The River, and Places in the Heart, as well as by social scientists. Although most of the literature on U.S. farm women is descriptive, it does detail their roles, the commodities they produce, the tasks they perform, and the farm decisions they make (Downie and Gladwin; Rosenfeld; and Sachs).

Some researchers, however, question why we have waited so long to "discover" women on the U.S. family farm. Have farm women always been involved in the farming operation, and it took the women's movement for that to be noticed? Or has there been a real increase in women's farming over the past 50 years, so that now they are more involved in farmwork as well as the housework? The latter is the author's view.

What does the evidence say? Data from 113 personal interviews in four north Florida counties show men's and women's contributions to farm and off-farm work, gardening, and housework. The data were collected in the early 1980's using an open-ended questionnaire that asked farm women and their husbands to recall the major tasks they performed throughout the year and the time required. Although this method is admittedly less accurate than time-use diaries, a prohibitively

expensive method, the data do agree with other estimates of the average time women spend in housework.

Results show that multiple roles is the norm in north Florida, with both husbands and wives juggling farm and off-farm work, housework, and gardening. Furthermore, there is such individual variation in the juggling act that no clear pattern emerges from these data. Results also show that, although north Florida men spend 35 hours a week on farm work and 20 hours per week in off-farm jobs, north Florida women on average spend 22 hours per week on farm tasks and 17 hours per week on off-farm work. In addition, women spend 26 hours per week on housework and 12 hours per week during the spring and summer gardening and processing the produce. While men spend more time farming, women's farm hours are substantial and amount to, on average, a part-time job. Women's farm work was previously estimated at 11 hours per week, based on time-use diaries in the 1920's and 1930's. Assuming these data are comparable, why are women on part-time farms in north Florida now doing more of the farming? They are stepping in and substituting for their husbands, more of whom must now work off the farm in order to subsidize farm income. Because rural men's off-farm wages are higher than rural women's in Florida, more women are becoming part-time and full-time farmers due simply to their "pitching in and helping" attitudes, aimed at keeping the farm going and the family together. Their ideology is not feminist; rather, they identify with members of their family and their struggles and in times of farm

1/ The author is Associate Professor, Food and Resource Economics Department, University of Florida, Gainesville, Florida.

crisis, defend their farm family class interests.

National Evidence

Do available national data support the hypothesis that women are now doing more of the farming? Unfortunately, women farmers have been so "invisible" (Sachs 1983) that some of the data have been contradictory until recently. For example, the U.S. Census of Agriculture undercounts farm wives as operators by allowing only one family member to be listed as "main operator." Since most couples list the husband as main operator, the census finds only 5.4 percent of farm operators are women. By contrast, when the USDA 1980 National Farm Woman Survey asked 2,500 women by phone if they considered themselves to be a "main operator," 55 percent answered yes (Rosenfeld 1985).

Although the hours-of-work data from north Florida suggest that farm women are farming more now, it is impossible to distinguish regional variation from change over time because the 1930's data were national. Fortunately, data from the 1984 Ford Tractor mail-out survey of 3,300 North American farm women fill the gap, because these data are directly comparable with the 1980 USDA survey.

The results show that farm women regularly took care of the garden, did the bookkeeping and financial work, ran errands, and supervise and took care of farm animals (table 1). A comparison of the survey results, moreover, shows that more women were regularly doing these tasks in 1984 than in 1980. These results are significant at the .01 level, except for gardening, which is significantly different from 1980 to 1984 at the .05 level. In addition, both surveys show that occasionally, women supervised farm work of hired labor and family members, harvested

crops, made major purchases of equipment, and did field work without machinery. Only one-third of the women, however, occasionally did the plowing or disking, and marketed their products. In 1984, more women were doing all these tasks on an occasional basis, and again, the results are significant at the .01 level. Clearly, women are involved in farm work, and that involvement increased during this period.

Other results of the Ford Tractor survey show, in agreement with the USDA study, that 54 percent of the women considered themselves one of the main operators on the farm. Only 3 percent were sole operators, and 43 percent were not operators. Women's increased involvement in farm tasks, of course, also leads to an increased participation in farm decisionmaking.

Why the Increase in Women's Farming?

Starting with Boserup (1970), researchers of the sexual division of labor in pre-industrial societies of the Third World generally agree that women's agricultural contributions decline with agricultural intensification. Boserup first noted that female farming in which women take care of food production with little help from men, is prevalent in societies in sub-Saharan Africa and declines with agricultural intensification (Boserup, 16-36). The inverse of the Boserup hypothesis suggests that women's participation in agricultural production should increase as agriculture becomes less capitalized and more labor-extensive on part-time family farms. According to this hypothesis, women's participation in agricultural production should increase again as the intensification process is reversed and agriculture becomes less intensive as the majority of family

farms in industrialized societies are transformed from full-time to part-time. If this inverse of Boserup's hypothesis is true, it would explain the recent flurry of interest in farm women's roles and labor contributions in the European Community and the United States.

Although estimates vary, recent data attest to the increase in the number and size of part-time family farms. Historically, this increase occurred in the 1950's through the 1970's in the Southeast United States. It is now occurring, due to the farm crisis, in many states in the Midwest. USDA's Farm Costs and Returns Survey data show that farming is the major occupation of the farm operator and farm income is the major family income source for only 39 percent of all farms not in poverty. Part-time farms now comprise 61 percent of farms. Other estimates of the proportion of part-time farms are as high as 86 percent, while the full-time farms who produce most (67 percent) of marketed food production comprise only 12 percent of all farms.

The increase in women's farming is also partly due to technological advances reducing domestic work within the home. Because of modern home appliances, time spent doing housework, usually done by women, has decreased from 50 to 26 hours per week during the last 50 years. This released time has allowed contemporary farm women to increase either farm or off-farm work. Although some women choose to spend that released time off the farm, the north Florida sample indicates an equal proportion of them choose to farm.

References

Ahearn, Mary and John Lee. "Multiple Job Holding Among Farm Operator Households in the United States: Historical Perspective And Future Prospect." Multiple Job-Holding Among Farm Families in North America, Jill Findeis and M.C. Hallberg, eds. Ames: Iowa State University Press. 1988.

Boserup, Ester. Women's Role in Economic Development. New York: St. Martin's Press. 1970.

Downie, Masuma and Christina Gladwin. Florida Farm Wives: They Help the Family Farm Survive. Gainesville: Univ. of Fl. 1981.

Sachs, Carolyn E. The Invisible Farmers: Women in Agricultural Production. Totowa, N.J.: Rowman and Allanheld. 1983.

Rosenfeld, Rachel Ann. Farm Women: Work, Farm, and Family in the United States. Chapel Hill: Univ. of North Carolina Press. 1985.

Table 1. Farm Women's Involvement in Farm Tasks

	1980 USDA Survey 1/		1984 Ford Tractor Survey 2/	
	Regular duty	Occasionally	Regular duty	Occasionally
	Percentage responding			
Gardening	74	14	76	18
Bookkeeping, etc.	61	17	69	21
Running farm errands	47	38	51	45
Taking care of farm animals	37	29	44	41
Supervising farm work of other family members	24	26	25	46
Harvesting crops	22	29	22	49
Making major purchases of farm equipment and supplies	14	23	14	36
Supervising hired labor	11	25	13	43
Doing field work without machinery	17	25	13	48
Plowing, disking, cultivating, or planting	11	26	10	37
Marketing products	15	18	12	30

1/ Sample size= 2,500

2/ Sample size= 3,300

Prospects For Off-Farm Employment As A Continued Factor In Farm Family Incomes

by R. G. F. Spitze and R. K. Mahoney^{1/}

Introduction

For over half a century as U.S. farming has undergone a series of technological revolutions, excess farm labor has sought alternative employment. It has taken two forms, migration of labor out of agriculture and off-farm employment of labor remaining on farms. Without both of these outlets, the dramatic adjustments characterizing American agriculture would not have been possible. Although the stream of production technology would likely have benefitted consumers to some degree in the absence of these labor adjustments, farm families would have faced severe chronic economic crises as the opportunity costs for their labor declined.

Farm labor and management are confronted continually with the need to adjust their own resource use in response to the squeeze between the inelastic demand for their product and rising labor and capital opportunity costs. Thus, macroeconomic and employment factors affect the future income prospects from off of the farm of the farm families as well as affecting the relative profitability of their farm enterprises.

In this paper, some of the trends relevant to farm employment shifts in the United States, as well as for the commercial farming and industrial state of Illinois, are examined, with emphasis on the off-farm employment.

Economic Setting for Farm Labor Adjustments

As long as new farm production technology--both labor and capital saving--is forthcoming from combined private and public research, and farming continues its highly competitive structure, economic firm size will increase and excess farm labor will continue. If that excess labor is efficiently used in alternative gainful employment, the economy also gains through additional products and services. Thus, the economic welfare of both the consuming and farm producing public depend upon the reliability and stability of the labor outlets for either farm migrants or off-farm employees.

These labor opportunities, in turn, are determined by macro-conditions and policies of the United States and other world economies, the structure of future U.S. industrial growth, and investments in the human resources of rural America. If alternative employment opportunities are readily accessible within commuting distance of the farm, off-farm employment can serve as the adjustment. In the absence of such opportunities, out-migration may be necessary. The push for such adjustments from the farm labor supply side is affected by the nature of farming while the pull from the labor demand side is affected by the nature of the surrounding rural sector and by the environment provided by the general industrial economy. These economic forces vary by state and region.

^{1/} Professor, Agricultural Economics, University of Illinois, Urbana-Champaign and Agricultural Economist, USDA, Agricultural Cooperative Service, CCD, Washington, D.C.

Off-farm Labor at the National Level

In table 1, trends for U.S. farm and off-farm income per farm are presented, along with three national labor market factors: number of farms, farm population, and unemployment levels. Income trends per farm have been highly variable and generally positive. Much of the increase in current dollar terms, particularly in the 1970s, was due to inflation. When deflated, increases in net farm income per farm slowed from .9 percent and 7.8 percent per year in the late 1960s and early 1970s to -7.8 percent in the late 1970s. Net farm income began to rebound again in the 1980s, substantially and increasingly supported by public price and income policies.

As the United States agricultural technological revolution released excess farm labor, off-farm income has generally risen, both in absolute terms and as a proportion of total farm family income. However, the rate of increase in off-farm income has slowed substantially throughout the past 25 years to essentially no growth in the first half of this decade. The jump in net farm income in the early 1970s probably slowed the decline in farm numbers, and relieved the need for off-farm income. However, the explanation for the demise of the growth of off-farm earnings seems more likely related to the worsening of general economic conditions.

Nationwide unemployment levels rose from a low of 3.8 percent annual average in the late 1960s to 8.2 percent in the first half of the 1980s, the latter prior to the recent recovery. Multiple job holding appears to be substantially driven by available employment opportunities in the economy and is likely to be particularly important at the margins of skill levels and job security where farm labor operates.

During the past quarter century, as can be seen in the table, unemployment levels have risen, the decline in farm population has slowed, and the growth in real off-farm income has essentially disappeared. The transfer of farm labor resources to the urban labor market has likely become more difficult. These trends raise the serious question of whether farm families can depend in the future upon their off-farm jobs to serve as both a supplementing and stabilizing income source as they have during the dramatic farm adjustments of the past half century.

Off-farm Labor at the State Level-- Illinois

In order to assess relevant farm and urban labor market trends at the state level, data are presented for Illinois. It represents states with a highly commercialized farming sector as well as widely dispersed metropolitan employment centers. In table 2, comparative data of off-farm income by source and family member are presented from two primary representative surveys of all farmers in Illinois, 1971 and 1985 (Hanson and Spitze; Mahoney).

Some important characteristics emerged from comparisons of these studies. Although Illinois farms are generally commercial and specialized, off-farm income to farm families exceeded that from farm sources in both of the 1971 and 1985 surveys. The relative importance of that off-farm income remained essentially unchanged, 52 percent in 1971 compared to 53 percent in 1985. The trend mirrors that at the national level, 56 percent in 1971 versus 57 percent in 1985.

The absolute levels of off-farm income in Illinois in real terms increased significantly, \$14,277 in 1971 to \$16,097 in 1985. Similarly, national levels rose from \$14,800 in 1971 to \$16,700 in 1985. All of

this increase occurred in the 1970s. Off-farm wage and salary income was the largest component of total off-farm income, but declined from 68 percent in 1971 to 55 percent in 1985, probably reflecting the deteriorating employment conditions for skilled, industrial workers. Illinois unemployment rose from 5.1 percent in 1971 to 9 percent in 1985. Within the wage and salary component from the Illinois study, the earnings of the spouse accounted for 35 percent in 1985 (19 percent of all family off-farm income), up from 27 percent in 1971 (18 percent of all family off-farm income). The spouse earnings rose from \$2,566 to \$3,082 while those of the operator dropped from \$6,667 to \$5,330. These differential trends for farm operators and spouses probably reflected relatively poorer employment prospects for the industrial skills of the operator than for the spouses in the service sector. The most prevalent off-farm occupation reported by operators was "trade occupation" while that for spouses was "office worker." Better education of the spouses and their smaller families, which permits more time away from home, may also be factors in the rise in their earnings. For example, from 1971 to 1985, spouses' education profile changed as follows: grade school, dropped from 25 percent to 5 percent; high school rose from 47 percent to 51 percent; and college jumped from 7 percent to 12 percent.

Interest and rental income, although still small, grew in importance, likely reflecting the rise in real interest levels. Pensions and retirement income similarly rose, probably due to the importance of social security benefits.

Net farm income slightly increased in Illinois, \$13,296 in 1971 to \$14,673 in 1985, compared to the national net farm income

averages, rising from \$11,700 in 1971 to \$12,800 in 1985. The higher absolute levels reflect the stronger commercial status of Illinois farming, but the slightly lower gain reflects the less favorable economic conditions for that State's farm enterprises during that period.

Summary

Off-farm employment has provided a critical alternative opportunity for excess farm labor during revolutionary production adjustments in American agriculture for over half a century. That income source has rather consistently grown in absolute value terms, much of which was due to inflation, but also as a proportion of total farm family income. Its rate of growth has been affected by the push factors of farm adjustments, associated with technology, and by the pull factors of the nonfarm labor market.

Over the past 35 years, the rate of increase in those off-farm earnings has persistently declined to essentially no increase in the recent recession years. This is particularly noteworthy in a commercial agricultural and industrial state like Illinois where the loss of off-farm skilled jobs resulted in a reduction of real operator earnings while spouse off-farm earnings increased absolutely and relatively.

Unless macroeconomic and employment factors affecting the employment trends of recent decades are altered in the future, it is questionable whether off-farm job alternatives can continue absorbing an increasing proportion of the excess labor on farms of this nation, even though they will likely remain an important outlet. That margin of improvement in future farm family income may have to rely on other safety nets within the farm firm or associated with public policies.

References

- Hanson, R. J. and R. G. F. Spitze.
An Analysis of Off-Farm Income in
the Improvement of Illinois Farm
Family Income. University of
Illinois Agricultural Experiment
Station AERR139. January, 1976.
43 pp.
- Mahoney, Rosemary K. An Analysis of
Off-Farm Income to Illinois Farm
Households. Unpublished M.S.
Thesis. University of Illinois.
1987. 216 pp.

Table 1. U.S. Farm and Family Resource Adjustments, Rates of Change, 1960-85^{1/}

Period	Net farm income per farm, (constant \$)	Off farm income per farm, (constant \$)	Total family income per farm, (constant \$)	Number of farms	Farm population	Unemployment rate average
	----- Percent -----					
1960-65	4.2	10.5	7.2	-3.3	-4.6	5.4
1965-70	.9	4.6	2.9	-2.6	-4.7	3.8
1970-75	7.8	2.7	4.9	-3.1	-1.8	6.0
1975-80 ^{2/}	-7.8	.9	-3.3	- .7	- .8	6.7
1980-85 ^{2/}	2.5	.1	1.1	-1.3	-2.4	8.2

^{1/} Compound annual rates of change for period indicated, except for unemployment rates presented as averages; constant 1982 dollars derived using GNP deflator.

^{2/} Data for all 1980 income rates was the average of years 1979-81, used because of the unusual drop in farm income for that one year.

Sources of base data: USDA. Economic Indicators of the Farm Sector, National Financial Summary 1986. Economic Report of the President 1988.

Table 2. Comparison of Average Farm Household Income from All Sources, Illinois, 1971, 1985

	1971 ^{1/}		1985	
Number of households surveyed	1400		896	
	<u>Percent</u> ^{2/}	<u>Income</u> (1985 dollars)	<u>Percent</u> ^{2/}	<u>Income</u> (dollars)
Off-farm wage and salary income				
Operator	46.7	\$ 6,667	33.1	\$5,330
Spouse	18.0	2,566	19.1	3,082
Other household members	2.8	403	2.8	456
Total wage and salary	<u>67.5</u>	<u>9,636</u>	<u>55.0</u>	<u>8,868</u>
Net nonfarm business income	8.2	1,170	6.8	1,090
Custom farm work	4.1	591	4.3	687
Interest income	6.8	969	14.3	2,300
Dividends	4.4	629	2.3	364
Rental income	2.8	403	5.7	918
nonfarm	---	---	---	364
farm	---	---	---	554
Royalties	0.2	25	0.5	78
Trusts and estates	2.5	352	3.6	573
Pensions and retirement benefits	2.7	390	5.4	864
Nonagricultural govt. payments	---	---	0.6	103
Miscellaneous	0.8	112	1.5	252
Total off-farm household income	<u>100.0</u>	<u>14,277</u>	<u>100.0</u>	<u>16,097</u>
Net farm income		13,296		14,673
Total farm household income		<u>\$27,573</u>		<u>\$30,770</u>
Proportion of income from farm sources	.4822		.4769	

^{1/} 1971 income translated into 1985 dollars using GNP deflator.

^{2/} Percent of total off-farm income for year indicated.

COMMODITY PROGRAM UPDATE

BY THOMAS H. LEDERER AND RICHARD L. SHELTON*

Commodity	1985	1986	1987	1988	1989
Wheat					
Target price (\$ per bu.)	4.38	4.38	4.38	4.23	4.10
Loan rate (\$ per bu.)	3.30	2.40	2.28	2.21	2.06
Acreage reduction (percent)	20	22.5	27.5	27.5	10
Paid land diversion (percent)	10	5-10	--	--	--
Nat'l base acreage (mil. acres)	94.0	92.2	91.7	91.8	N.R.
Corn					
Target price (\$ per bu.)	3.03	3.03	3.03	2.93	2.84
Loan rate (\$ per bu.)	2.55	1.92	1.82	1.77	1.65
Acreage reduction (percent)	10	17.5	20	20	10
Paid land diversion (percent)	--	2.5	15	10	--
Nat'l base acreage (mil. acres)	84.2	81.9	83.3	83.4	N.R.
Grain Sorghum					
Target price (\$ per bu.)	2.88	2.88	2.88	2.78	2.70
Loan rate (\$ per bu.)	2.42	1.82	1.74	1.68	1.57
Acreage reduction (percent)	10	17.5	20	20	10
Paid land diversion (percent)	--	2.5	15	10	--
Nat'l base acreage (mil. acres)	19.3	19.0	17.4	17.0	N.R.
Barley					
Target price (\$ per bu.)	2.60	2.60	2.60	2.51	2.43
Loan rate (\$ per bu.)	2.08	1.56	1.49	1.44	1.34
Acreage reduction (percent)	10	17.5	20	20	10
Paid land diversion (percent)	--	2.5	15	10	--
Nat'l base acreage (mil. acres)	13.2	12.4	12.9	12.6	N.R.
Oats					
Target price (\$ per bu.)	1.60	1.60	1.60	1.55	1.50
Loan rate (\$ per bu.)	1.31	0.99	0.94	0.90	0.85
Acreage reduction (percent)	10	17.5	20	5	5
Paid land diversion (percent)	--	2.5	15	--	--
Nat'l base acreage (mil. acres)	9.4	9.5	8.7	8.0	N.R.
Rye					
Loan rate (\$ per bu.)	2.17	1.63	1.55	1.50	1.40
Soybeans					
Loan rate (\$ per bu.)	5.02	4.77	4.77	4.77	N.R.
Peanuts					
Loan rate, quota (\$ per ton)	559	607.47	607.47	615.27	N.R.
Loan rate, non-quota (\$ per ton)	148	149.75	149.75	149.75	N.R.
Marketing poundage quota (1,000 tons)	1,100	1,355.5	1,355.5	1402.2	1400

	1985	1986	1987	1988	1989
Upland Cotton					
Target price (cents per lb.)	81.0	81.0	79.4	75.9	73.4
Loan rate (cents per lb.)	57.3	55.0	52.25	51.8	50.0
Acreage reduction (percent)	20	25	25	12.5	25
Paid land diversion (percent)	10	--	--	--	--
Nat'l base acreage (mil. acres)	15.8	15.5	14.5	14.6	14.3
Extra Long Staple (ELS) Cotton					
Target price (cents per lb.)	103.14	102.48	97.7	97.1	96.7
Loan rate (cents per lb.)	85.95	84.50	81.4	80.9	81.8
Acreage reduction (percent)	10	10	15.0	10	5
Nat'l base acreage (thous. acres)	66.0	77.7	85.9	104.9	N.R.
Rice					
Target price (\$ per cwt)	11.90	11.90	11.66	11.15	10.80
Loan rate (cents per lb.)	8.00	7.20	6.84	6.63	6.5
Acreage reduction (percent)	20	35	35	25	25
Paid land diversion (percent)	15	--	--	--	--
Nat'l base acreage (mil. acres)	4.2	4.2	4.2	4.2	4.2
Flue-cured Tobacco					
Loan rate (cents per lb.)	169.9	143.8	143.5	144.2	146.8
Effective marketing quota (mil. lbs.)	758	699	740	810	900
Burley Tobacco					
Loan rate (cents per lb.)	178.8	148.8	148.8	150.0	N.R.
Effective marketing quota (mil. lbs.)	541.7	484	524	559	N.R.
Wool					
Support level (cents per lb.) 3/	165	178	181	N.R.	N.R.
Mohair					
Support level (cents per lb.) 3/	443	493	495	N.R.	N.R.
Sugar					
Loan rate for raw cane (cents per lb.)	18.00	17.23	18.00	18.00	N.R.
Loan rate for refined beet (cents per lb.)	21.06	20.18	21.16	21.37	N.R.
Honey					
Loan rate (cents per lb.)	65.3	64.0	61.0	59.1	N.R.

*U.S. Agricultural Policy Branch, ATAD, ERS. For more information, call (202) 786-1696.

-- = Not applicable.

N.R. = Not released.

AGRICULTURAL AND FOOD POLICY UPDATE: ADMINISTRATIVE DECISIONS

by Kathryn L. Lipton

GRAINS AND COTTON

1989 Feed Grain Program Provisions--

USDA announced a 10-percent acreage reduction (ARP) for 1989 crop corn, grain sorghum, and barley and a 5-percent ARP for 1989 crop oats. The 1989 crop corn, sorghum, and barley ARP's are reduced from 20 percent for the 1988 crop. The oats ARP remains the same. Other provisions include:

- o target prices established per bushel are \$2.84 for corn, \$2.70 for sorghum (\$4.82 per hundredweight), \$2.43 for barley, and \$1.50 for oats;
- o loan and purchase rates per bushel are \$1.65 for corn, \$1.57 for sorghum (\$2.80 per hundredweight), \$1.34 for barley, \$0.85 for oats, and \$1.40 for rye;
- o no marketing loan program for feed grains will be implemented.
- o malting barley will not be exempt from the acreage limitation requirements established for the 1989 barley program;
- o oats will not be subject to the limited cross compliance provisions;
- o there will not be a paid land diversion program.

Additional 1989 Farm Program

Provisions-- USDA announced that during the 1989 farm program signup producers may declare their intentions to plant from 10-25 percent of each crop's permitted acreage to soybeans or sunflowers while protecting their crop's acreage base history.

Planting intentions under this special provision will be reviewed and the percentage of permitted acreage that may be devoted to additional soybean/sunflower

plantings may be adjusted, if necessary to ensure that the price for the 1989 crop of soybeans will not be less than 115 percent, or \$5.49 per bushel, of the prior year's loan rate of \$4.77. Any limitations concerning this planting option will be announced after an analysis of producers' planting intentions.

Also, any portion of a farm's acreage base (FAB), excluding the soybean acreage included in the calculation of the FAB, may be designated an acreage base for oats for the 1989 crop year. Any acreage so designated in 1989 will be considered planted to the original program crop for the purpose of determining the FAB or crop acreage base in future years but will not result in an increase in the program bases. Program benefits for such acreage planted to oats will be those applicable to oats.

Wheat and feed grains producers may elect to participate in the 0/92 optional acreage diversion program. Rice and upland cotton producers may participate in the 50/92 program.

1989 Rice Program Provisions-- The national average level of price support for the 1989 rice crop was set at \$6.50 per hundredweight. Additional program provisions include:

- o the required acreage reduction is 25 percent;
- o the established target price will be \$10.80 per hundredweight;
- o the differential between whole kernel milled rice price support rates is established at \$1 per hundredweight, unchanged from the 1988 crop;

- o whole kernel milled rice price support rates are \$10.81 per hundredweight for long grain and \$9.81 for medium and short grain rice. The broken kernel rate for all rice classes is \$5.41 per hundredweight;

- o producers who pledged 1989 crop rice as collateral for a price support loan will not be permitted to purchase marketing certificates when repaying loans at the marketing loan repayment rate;

- o the discretionary inventory reduction program will not be implemented;

- o the program signup period is December 19 through April 14, 1989.

1989 Upland Cotton Program

Provisions-- USDA announced a 25-percent acreage reduction and other provisions of the 1989 upland cotton program:

- o the established target price will be 73.4 cents per pound;

- o the loan level will be 50 cents per pound for the base quality of upland cotton;

- o Plan B of the marketing loan program will be implemented. Under the plan, 1989 crop cotton pledged as collateral for a price support loan may be repaid at the lower of the adjusted world price or the loan level;

- o A paid land diversion program will not be implemented;

- o loan deficiency cash payments will be made to eligible producers who agree to forego loan eligibility if the loan repayment rate is less than the announced loan level. The payment rate will equal the difference between the loan level and the loan repayment rate. Producers may elect to forego loan eligibility and receive loan deficiency payments on a bale-by-bale basis;

- o a recourse loan program for upland seed cotton will be available;

- o an inventory reduction program will not be implemented.

Changes in Upland Cotton Program--

Changes were made in the upland cotton program to make U.S. upland cotton more competitive in world markets. U.S. cotton had not been competitive in world market for 8 months prior to the announced changes. As a result, U.S. export sales have declined. The reduced export sales, together with the large 1987 crop, have resulted in an increase in U.S. stocks, lower prices, and higher federal costs.

To make U.S. cotton more competitive in world markets, the regulations for determining the prevailing world market price for upland cotton, adjusted to U.S. quality and location (adjusted world price) are being amended. Among the changes, the period for determining the transportation adjustment is reduced from 156 to 52 weeks. Further adjustments can be made if it is determined that the calculated adjustment is not reflecting actual transportation costs.

The additional adjustment for coarse count cotton is modified by removing the one-cent minimum adjustment and applying the adjustment to any grade of upland cotton with a staple length of 1/32 inch or shorter. The adjustment is also applied to selected grades with a staple length 1 1/16 or longer.

When the upland cotton loan rate plus the sum of accrued interest and warehouse charges (except compression) exceed the adjusted world price (AWP), the CCC will not require payment of that portion of the interest and will pay that portion of the warehouse charges that is determined to be necessary to permit upland cotton loan collateral to be redeemed with cash at the AWP. Previously, when upland cotton pledged as loan collateral

was redeemed with cash, the redeemer must pay all the accrued interest plus warehouse charges previously paid by the CCC.

1989 Farm Program Deficiency Payment Rates-- The projected deficiency payment rates for 1989 crops on which advance payments will be based are:

	Projected Deficiency Payment Rates	Advance Portion
	cents	
Wheat (bu)	.50	.20
Corn (bu)	.89	.356
Sorghum (bu)	.90	.35
Barley (bu)	.23	.092
Oats (bu)	.00	.00
Upland		
cotton (bu)	.214	.0642
Rice (lb)	.043	.0129

Producers participating in the 1989 farm programs may request advance payments during the signup period of December 14 through April 14, 1989, of 40 percent of the estimated total deficiency rates for wheat and feed grains and 30 percent of such rates for upland cotton and rice.

The deficiency payment rates for wheat and feed grains on acreage devoted to conserving use under the optional acreage diversion program--the 0/92 program--will not be less than the above estimated total payment rates.

1988 Wheat Producers to Receive Deficiency Payments-- USDA's Commodity Credit Corporation will make about \$235 million in deficiency payments to eligible producers of 1988 crop wheat. No deficiency payments are due to barley and oat producers.

Deficiency payments are made when national weighted average market prices received by producers of these crops during the first 5 months of the marketing year (June through October 1988) are below the established target price levels. Barley and oat producers will not receive payments because the 5-month average market prices are above the respective target prices.

USDA Announces Changes in Cotton Price Quotation Procedures-- USDA announced changes in procedures used to determine price quotations published for cotton sold in the eight "spot" markets USDA designates for determining raw cotton price quotations. The changes are designed to improve the efficiency of establishing price quotations for traded cotton. Responsibility for determining the published price quotations for the various cotton qualities will be transferred to AMS's Cotton Division. Presently, quotations committees, composed of cotton buyers and traders, assist the division in determining price quotations.

Another change consolidates the eight spot markets into seven regional units, with geographic boundaries redefined and markets renamed. The new markets cover more territory, giving a larger source from which to gather trading prices over a given period in order to arrive at a representative and more accurate price quotation.

USDA also will add "number of bales traded" to each price quotation published, enabling traders to gauge the significance of the quotation more precisely.

OILSEEDS AND TOBACCO

Flue-Cured Tobacco Program Announced and Referendum Set-- The 1989 flue-

cured tobacco program provisions are as follows:

- o The national marketing quota for the 1989 crop is 890.5 million pounds, up from the 1988 quota of 755 million pounds;

- o The national average yield goal has been increased from 1,989 pounds per acre to 2,088 pounds;

- o The support level for the 1989 crop is \$1.468 per pound, up 2.6 cents from the 1988 level;

- o The national acreage allotment for the 1989 crop is 426,485 acres, up from the 1988 allotment of 379,588 acres;

- o For each farm, the 1989 basic quota will increase about 18 percent over 1988, and the basic allotment will increase about 12.5 percent over 1988;

- o The effective quota is expected to be about 900 million pounds, or 90 million pounds above last year's quota;

- o The budget deficit assessment will be 0.24 cents per pound, divided equally between producer and buyer.

1989 National Peanut Poundage Quota-

- The national poundage quota for the 1989 peanut marketing year will be 1,440,000 short tons (2,880 million pounds). This quota is 37,800 short tons about that established for the 1988 crop. The Agricultural Adjustment Act of 1938 requires that the quota level equal the estimated quantity of peanuts that will be devoted to domestic edible, seed, and related use in the 1989 marketing year which begins August 1, 1989. The 1989 crop national poundage quota will be allocated to each state based on the state's share of the 1988 quota.

1988-Crop Additional Peanut Poundage Contracts--

Over 667,000 short tons of peanuts were contracted for the 1988 crop. By growing area, the quantities are:

Southeast	994,725,125 pounds
Virginia/Carolina	
	177,581,185 pounds
Southwest	161,918,032 pounds

SUGAR AND SWEETENERS

1989 Sugar Import Quota-- The U.S. sugar import quota for the 1989 quota period will be 1,125,255 metric tons, raw value, an increase of more than 17 percent compared to 1988. Total authorized quota shipments are the sum of the specialty sugar quota, the minimum quota allocations, the quota adjustment amount, and the base import quota minus certain adjustments in the base import quota.

The 1989 quota is established in metric tons rather than short tons to meet the requirements of the Harmonized Tariff System, which became effective January 1.

LIVESTOCK AND MEAT

Meat Imports Below 1988 Trigger--

The United States will not have to impose meat import quotas for 1988 because meat imports are projected at 1,545.4 million pounds--100,000 pounds below the level that would require quotas on imports. Australia and New Zealand, the two largest suppliers of imported meats, have voluntarily agreed to limit their meat exports at 800 million and 445 million, respectively.

The Meat Import Act of 1979 requires the President to restrict imports of beef, veal, mutton, and goat if USDA estimates the annual imports will equal or exceed a trigger level set at the beginning of each calendar year. The trigger level, determined by formula in the Act, is 1,525.5 million pounds for 1988.

Streamlined Inspection System for Young Chickens-- A new slaughter inspection system for young chickens is being adopted as part of USDA's inspection modernization efforts. Under the program, inspectors determine which birds are to be salvaged, reprocessed, condemned, retained, or passed subject to reinspection after slaughter. Then plant employees, following the inspector's directions, mark carcasses and perform any necessary trimming. Trimming and processing operations are monitored through statistical sampling to ensure that products meet federal standards for wholesomeness and acceptability. The system is being used in approximately 145 poultry plants that process cornish game hens and broilers.

Model Plan for Detecting Salmonella in Egg Laying Flocks-- USDA sent state agriculture and animal health officials and the poultry industry a voluntary model plan for testing poultry flocks for Salmonella enteritidis. The Food and Drug Administration will distribute the plan to state public health officials.

The program is designed to help determine the extent of salmonella enteritidis in table eggs, identify infected flocks, and enable producers to assure egg quality. Last April, the Centers for Disease Control in Atlanta reported more than 2,000 cases of S. enteritidis in the Northeast from January 1985 to May 1987, including 11 deaths.

The voluntary quality assurance program calls for state agriculture and National Improvement Plan (NPIP) officials, in cooperation with producers, to test breeder and suspected commercial egg production flocks for S. enteritidis. The plan also calls for priority testing of flocks associated with the presence

of S. enteritidis bacteria in humans and poultry.

Acidic Substances Allowed in Fresh Pork-- USDA will permit the controlled use of ascorbic acid, erythorbic acid, citric acid, sodium ascorbate, and sodium citrate to maintain the color of fresh pork cuts during normal shelf-life. The use of these substances does not pose a health risk, according to USDA.

Processors, operating under a USDA-approved partial quality control program, are allowed to use the substances in fresh pork cuts. Under these program, plants establish controls at certain processing steps. USDA inspectors monitor the plant's controls and data to ensure the process is operating correctly.

Product labels will identify the added substances and the reason for their use. The label may read, for example, "sprayed with a solution of water, ascorbic acid, and citric acid to maintain color."

CONSERVATION AND NATURAL RESOURCES

CRP Total Acres Reaches 28.1 Million-- USDA's Commodity Credit Corporation received bids to place 3,434,646 acres in the Conservation Reserve Program (CRP) during the seventh signup period, which ran from July 18 through August 31. Of that, 2,604,901 acres were enrolled in the 10-year CRP. The acreage bring the total under CRP contracts to 28,130,290. Annual rental payments in the bids accepted average \$49.71 per acre, average for the first six signups was \$48.38.

The eighth CRP signup is scheduled for February 6-24, 1989.

Farmers to Earn Back Reduced CRP Rental Payments-- Farmers whose Conservation Reserve Program annual rental payments were reduced when they harvested hay from CRP acres can recoup those payments by cost-sharing additional conservation practices on their land. This applies only to farmers in counties approved for drought relief under the 1988 Disaster Assistance Act.

USDA will provide cost-sharing funds up to 50 percent of the actual cost of the additional conservation practices, not to exceed the amount forfeited when farmers harvested hay on their CRP land. Tree planting and field windbreaks as well as permanent habitat and shallow water areas for wildlife are among the eligible practices.

The additional conservation practices are added in the producer's CRP contract and may be applied on the designated CRP acres or on any land on the same tract or adjoining tract of the same farm. Producers were required to sign up by December 31.

DROUGHT ASSISTANCE

Payments Begun Under Disaster Legislation-- Producers began receiving drought aid payments October 3 at Agricultural Stabilization and Conservation Service county offices. The aid was made available by the Disaster Assistance Act of 1988. (Copies of a summary of the legislation are available by calling (202) 786-1696.

Forage Assistance Program for Drought Relief-- Eligible livestock producers whose established pastures were damaged by drought or related conditions in 1988 may qualify for a maximum of \$3,500 per person under a cost-sharing program to reseed pastures. The Forage Assistance Program (FAP), authorized by the

Disaster Assistance Act of 1988, provides for cost-share assistance of up to 50 percent of the cost of reseeding. FAP assistance will be provided only if the forage crop will not regenerate naturally and reseeding is the most cost-effective method to reestablish the crop. Hayland is not eligible and FAP cannot be used simply to improve forage crops damaged by drought.

USDA Will Aid Tree Farmers Hit by Drought-- The Commodity Credit Corporation will reimburse eligible persons for qualifying losses of tree seedlings killed by drought or related conditions during 1988. Payments will be made under the Tree Assistance Program, which was authorized by the Disaster Assistance Act of 1988, and are authorized only for seedlings planted in 1987 and 1988 for commercial purposes. Trees covered under the program include those planted for the production of wood products, fruit, nuts, syrup and similar products, including Christmas trees grown for harvest.

In order to qualify for Tree Assistance Program benefits, drought loss of eligible seedlings on an individual stand must be more than 35 percent after adjustment for normal seedling mortality. Reimbursement will be made for 65 percent of the cost of replanting that portion of the adjusted loss which exceeds 35 percent.

Payments may only be made to the owners of the trees, who will not be eligible for payment unless they own 1,000 acres or less of commercial trees and who have less than \$2 million annually in qualifying gross revenues. Also, no person may receive more than \$25,000 in Tree Assistance Program payments.

FOOD SAFETY

USDA and FDA Launch Salmonella Public Awareness Campaign-- USDA and the Food and Drug Administration will distribute 50,000 Safe Egg-Handling Bulletins this week as part of a public awareness campaign aimed at high-risk populations, food service establishments, and consumers. High-risk populations who are particularly vulnerable to Salmonella enteritidis infections are: the elderly, the very young, pregnant women (because of risk to the fetus), and those already weakened by serious illness or whose immune systems are weakened.

INTERNATIONAL

P.L. 480 Country. Commodity Allocations for Fiscal 1989-- Food assistance allocations under Titles I and III of Public Law 480, the Food For Peace Program, will total an estimated \$663 million in fiscal 1989. The allocations are part of \$802.5 million in planned commodity assistance for the fiscal year. Twenty-eight countries are scheduled to receive approximately 3 million metric tons (grain equivalent) of food assistance. The allocations are part of the total Titles I and III program level of \$851.9 million.

The three largest allocations are scheduled for Bangladesh, \$60 million; Egypt, \$170 million; and Pakistan, \$80 million. A reserve fund totaling \$139.5 million has been established to furnish commodities for unforeseen needs during the fiscal year.

USDA Terminates Feed Initiative under EEP-- The Commodity Credit Corporation will no longer accept bonus applications for the export of mixed poultry feed under the Export Enhancement Program (EEP). Only one

country, the Yemen Arab Republic, was targeted under the mixed poultry feed initiative. For more information, call William Hawkins, CCC's Export Credit Division, (202) 382-9240.

USDA Establishes Office to Assist Agricultural Exporters--USDA established the Trade Assistance and Planning Office to assist U.S. exporters of agricultural products. The new office, part of USDA's Foreign Agricultural Service, will provide a wide range of information to exporters, including information on foreign export trade barriers, unfair trade practices, and remedies under U.S. law for persons who may have been injured by unfair trade practices.

The office also will coordinate the preparation and submission of an annual Long-Term Agricultural Trade Strategy Report to Congress, which must be submitted with the USDA budget each fiscal year. The report will cover trade goals, recommended policies and programs, and recommended spending levels for one-year, five-year, and 10-year periods.

The office is authorized by the 1988 Omnibus Trade and Competitiveness Act. James E. Ross will serve as director of the office.

USDA Sets TEA Program Level for Fiscal 1989-- USDA will allocate \$200 million for the Targeted Export Assistance (TEA) Program for fiscal 1989.

The USDA appropriations act for fiscal 1989 reduced the TEA program budget from \$325 million to \$200 million and provided that \$30 million of this amount should be held in reserve to be released by the Secretary of Agriculture. The Secretary has determined that the full \$200 million will be allocated for FY 1989.

The TEA program was authorized by the Food Security Act of 1985. The act requires the Secretary of Agriculture to use Commodity Credit Corporation commodities or funds each year through 1990 to provide assistance to U.S. agricultural products to counter or offset the adverse effects of unfair foreign trade practices on exports.

DOMESTIC FOOD ASSISTANCE

Increased Food Stamp Allotments-- Monthly food stamp allotments were increased in October by about 3.5 percent. Food stamp eligibility limits will go up by about 4 percent. These changes reflect regularly scheduled cost-of-living increases, as well as adjustments mandated in the Hunger Prevention Act of 1988.

The increases raised the food stamp allotment for a family of four from \$290 to \$300 per month. The new gross maximum income for a family of four receiving food stamps rose from \$1,214 to \$1,263 a month. The net maximum income is \$971 a month, up from \$934.

Households also saw a slight increase in the amount of deduction they are allowed to subtract from their gross incomes in determining net income levels. Standard income deductions are increasing from \$102 to \$106 per household. Shelter deductions are \$170 per household, a \$6 increase. New dependent care deductions will be set at \$160 per dependent.

Federal Foods to Needy-- USDA will maintain current distributions of butter (6 million pounds monthly), cornmeal (4 million pounds monthly), and flour (12 million pounds monthly). These three commodities are the only types of foods currently stored in USDA surplus stocks. USDA started distribution

of \$120 million of other food items in January and will continue through September 1989.

Market conditions will determine exactly what is purchased for the program. Plans are to provide peanut butter, canned pork, beans, egg mix, and raisins. Purchase of these foods was authorized under the Hunger Prevention Act of 1988.

AGRICULTURAL RESEARCH

Plant Science Center at Michigan State-- USDA announced a \$1.3-million, five-year grant to Michigan State University to establish a Plant Science Center to research genetic manipulation of some crops to produce new compounds for non-food use.

The award is part of a Plant Science Centers Program established by USDA, the Department of Energy, and the National Science Foundation to fund three centers to encourage top level basic research and training in plant science. The program is based on the need to improve the quality of food and fiber, to increase the efficiency of their production, and to develop and use new products to insure the future competitive position of U.S. agricultural products and production of renewable resources.

MISCELLANEOUS

New Rules on Payment Limitation Provisions-- USDA announced new rules for determining whether a person is "actively engaged in farming" for payment eligibility. ASCS county committees are now required to determine whether a person meets the "actively engaged in farming" requirement for payment eligibility under the 1989 and 1990 price support and production

adjustment programs and the Conservation Reserve Program. Previously, the only requirement for payment eligibility was to be identified as a producer.

Other changes include:

- o Significant contributions of active personal management will no longer be determined based upon the hours provided for management, but will be determined based upon the activities which are critical to the profitability of the farming operation;

- o A member of a joint operation owning land may qualify as being actively engaged in farming under the landowner provisions if it is documented that, upon dissolution of the joint operation, the member would receive a share of the land;

- o Cash rent tenants renting equipment from the landowner at a fair market value may qualify as separate persons from the landowner for payment limitation purposes;

- o Stockholders who collectively own at least 50 percent of the stock of a corporation must contribute active personal labor or active personal management for the corporation to be considered actively engaged in farming;

- o Noncitizens will be ineligible to receive certain payments, unless these persons are providing land, capital, and a substantial amount of personal labor to the farming operation.

1988 Yearbook Explores Agricultural Marketing-- In the 1988 Yearbook of Agriculture, "Marketing U.S. Agriculture," 75 authors from industry, government, and the academic community examine the links in the agricultural marketing chain--highlighting social and technological changes affecting the system. The yearbook offers case studies emphasizing four key elements of marketing--consumer research, product development,

delivery, and promotion.

Copies are available for \$9.50 from the Superintendent of Documents, Washington, D.C. 20402-9371.

FmHA Approves Funds for States' Farm Loan Mediation-- The Farmers Home Administration has allocated \$2.9 million to 13 states to help finance efforts to mediate farm loan disputes. The matching grants were authorized by the Agricultural Credit Act of 1987 and funded by fiscal 1989 appropriations. States qualifying for grants in FY 1989 are: Alabama, \$110,208; Iowa, \$305,000; Kansas, \$431,150; Minnesota, \$500,000; Mississippi, \$75,040; Montana, \$75,000; Nebraska, \$168,140; North Dakota, \$250,000; Oklahoma, \$269,870; South Dakota, \$97,000; Texas, \$500,000; Wisconsin, \$87,440; and Wyoming, \$25,000.

Referendum for Watermelon Research and Promotion Plan-- Growers and handlers will vote February 6-12 on a proposed research, advertising, and sales promotion program to improve the position of watermelons in the marketplace. The program would operate at no cost to the federal government. It would be financed by an assessment of up to 2 cents per hundredweight on watermelons, paid by farmers who grow five or more acres of watermelons and by first handlers--the dealers who buy directly from farmers. A grower of five or more acres who also handles watermelons would pay assessments for each function. Producers and handlers assess under the program could request and receive refunds.

A 29-member board representing watermelon producers, handlers, and the general public would administer the program. To pass, the referendum must be approved by either two-thirds of those voting or a majority of producers and a

majority of handlers accounting for at least two-thirds of the volume of watermelons represented in the referendum.

The National Watermelon Association originally proposed the plan, in accordance with the 1985 Watermelon Research and Promotion Act.

AGRICULTURAL AND FOOD POLICY UPDATE: LEGISLATION

by Susan L. Pollack

Agricultural Act of 1949, Amendment (P.L. 100-331) was signed on June 14, 1988. The law extends the cross-compliance requirements and prohibits increases in crop acreage bases for extra long staple cotton until 1990.

National School Lunch Act, Amendment (P.L. 100-356) was signed June 28, 1988. It amends the original act by requiring eligibility for free lunches to be based on nonfarm income poverty guidelines prescribed by the Office of Management and Budget.

Disaster Assistance Act of 1988 (P.L. 100-387) was signed on August 11, 1988. It provides assistance to farmers hurt by the drought or other natural disasters in 1988. Crop producers with losses greater than 35 percent of production are eligible for financial assistance and feed assistance is available to livestock producers.

Dire Emergency Supplemental Appropriations Act of 1988 (P.L. 100-393) was signed on August 14, 1988. The law appropriates additional funds for the Agricultural Stabilization and Conservation Service for 1988 to meet the increased workload in the county offices as a result of the drought, as well as funding for other Federal agencies.

Agricultural Credit Technical Corrections Act (P.L. 100-399) was signed August 17, 1988. The law corrects the Agricultural Credit Act of 1987, restoring language that exempts mergers of the Farm Credit System institutions from state transfer taxes.

Perishable Agricultural Commodities Act, Amendment (P.L. 100-414) was signed August 22, 1988. It increases the statutory ceilings on license fees and establishes the Perishable Agricultural Commodities Act Industry Advisory Committee.

Omnibus Trade and Competitiveness Act of 1988 (P.L. 100-418) was signed August 23, 1988. The law revises statutory procedures for dealing with unfair trade practices and import damage to U.S. industries. It gives the Secretary of Agriculture the discretionary authority to trigger marketing loans for wheat, feed grains, and soybeans, if it is determined that unfair trade practices exist, and to extend the export programs.

Hunger Prevention Act of 1988 (P.L. 100-435) was signed September 19, 1988. The law amends the Temporary Emergency Food Assistance Act of 1983 to require the Secretary of Agriculture to make additional types of commodities available for the program, and to improve the child nutrition and food stamp programs, to provide other hunger relief, among other provisions.

United States-Canada Free Trade Agreement Implementation Act of 1988 (P.L. 100-449) was signed September 28, 1988. The law implements the bilateral trade agreement between the United States and Canada, including agricultural trade. The agreement would phase out tariffs between the two countries over 10 years and revise other trade rules.

Rural Development, Agriculture, and Related Agencies Appropriation Act, 1988 (P.L. 100-460) was signed

October 1, 1988. The law provides \$46 billion to fund agricultural and related programs for fiscal year 1989.

Endangered Species Act Amendments of 1988 (P.L. 100-478) was signed October 7, 1988. The law appropriates funds to carry out the Endangered Species Act of 1973 through 1992.

Family Support Act of 1988 (P.L. 100-485) became law October 13, 1988. The law revises the Aid to Families with Dependent Children program to emphasize work, child support, and family benefits. It also amends Title IV of the Social Security Act to encourage and assist needy children and parents obtain education, training, and employment to enable them to avoid long-term welfare dependence.

U.S. Grain Standards Act, Amendments of 1988 (P.L. 100-518) was signed October 7, 1988. The law extends the U.S. Grain Standards Act until September 30, 1993 and authorizes charging and collecting inspection and weighing fees.

Federal Insecticide, Fungicide, and Rodenticide Act Amendments of 1988 (P.L. 100-532) was signed October 25, 1988. The law requires more than 600 ingredients used in pesticides to be tested for health and environmental effects. It also reauthorizes the 1972 Federal Insecticide, Fungicide, and Rodenticide Act. It sets an 8-year deadline for companies to test previously approved pesticides against modern health standards and for EPA to decide whether they should stay on the market.

Federal Crop Insurance Commission Act of 1988 (P.L. 100-546) was signed October 28, 1988. The law establishes a commission to study and determine why and where program

participation is low, and make recommendations to improve participation and protection from natural disaster.

Egg Research and Consumer Information Act Amendments of 1988 (P.L. 100-575) was signed October 31, 1988. The law limits the total costs that may be incurred by the Egg Board in collecting producer assessments and having an administrative staff, eliminates egg producer refunds, and delays conducting any referendum by egg producers on the elimination of the refunds.

Hunger Prevention Act of 1988, Amendment (P.L. 100-619) was signed November 5, 1988. The law amends the Hunger Prevention Act of 1988 by deleting the provision requiring monetary penalties and disqualification of retail food stores and wholesale food concern for purchasing or trafficking in food stamp coupons or cards.

Stewart B. McKinney Homeless Assistance Amendments Act of 1988 (P.L. 100-628) was signed November 7, 1988. The law extends the programs of the McKinney Act to assist the homeless.

Technical and Miscellaneous Revenue Act of 1988 (P.L. 100-647) was signed November 10, 1988. The law makes corrections to the Tax Reform Act of 1986, including tax reductions for farmers. It permanently exempts farmers from a 15-cent motor fuel tax for off-road vehicles, and repeals the "heifer tax", a controversial livestock accounting procedure.

Generic Animal Drug and Patent Term Restoration Act (P.L. 100-670) was signed November 16, 1988. The law amends the Federal Food, Drug, and Cosmetic Act authorizing abbreviated new animal drug applications, and

amends Title 35 of United States
Code authorizing extending patents
for animal drug products.

100-251

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Council for Agricultural Science and Technology. Long-term Viability of U.S. Agriculture. June 1988.

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